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Abstracts

(An explanation of the classification used in the Digest was published in the January (1949) issue (Vol. 6, No. 1) on the page facing the Index to Authors)

FIBERS A

Some wool-like properties of fibers and fabrics. A basic study from an engineering viewpoint. J. J. Press. *Rayon & Syn. Tex. 31,* 39-45 (Aug. 1950).

The literature on certain wool-like properties of wool, casein, silk, acetate, viscose, strong viscose, cotton, nylon and Orlon fibers was reviewed. The effect of fiber size and shape was studied, and a means was sought for relating pertinent fabric qualities such as roughness, bulk, bulk retention, warmth, resilience, crush resistance, hand and drape. Normal wool fibers and fabrics are discussed in terms of these factors and qualities. The effect of processing, on different systems, is noted. Warmth is discussed in terms of several component factors.

Natural fibers A 1

Crimping apparatus. Julius H. Pfauf to Alexander Smith & Sons Carpet Co.). USP 2 514 557, July 11, 1950.

Apparatus for crimping wool or the like which involves stuffing the fibers or filaments into a confining chamber having a gate which restricts discharge of the fibers of filaments from the chamber and means for introducing steam or other crimp setting fluid into the chamber.

PREDICTION OF THE SPINNING VALUE OF COTTON BELONGING TO DIFFERENT BOTANICAL SPECIES FROM THEIR CHIEF FIBRE PROPERTIES. By Harirao Navkal & D. L. Sen (Technological Bull., Series B, No. 41) Indian Central Cotton Committee Technological Laboratory, Feb. 1949. 17 p. Brice: As8.

Production of linear nitrogen—containing polymeric materials. Harold Bates, Jas. W. Fisher & Edw. W. Wheatley (to Celanese Corp. of Am.). USP 2 512 600-01, June 27, 1950.

A linear polymer for the production of filaments obtained by heating together a diamide and a dihydrazide of a dicarboxylic acid together with hydrazine.

PROGRESS REPORT ON THE ANNUAL VARIETAL AND ENVIRONMENTAL STUDY OF FIBER AND SPINNING PROPERTIES OF COTTONS. 1949 Crop. Prepared in the Div. of Cotton and Other Fiber Crops and Diseases. Beltsville, Md. U. S. Dept. of Agriculture, Agri. Res. Adm., Bureau of Plant Industry, Soils and Agricultural Engineering, July 1950. 80 p.

Reclamation of fibers; general survey of the industry. Harry Hardy. *J. Textile Inst. 41,* T189-91 (May 1950).

In a statement before the Textile Institute Conference on the reclamation of fibers, the problems confronting the "re-manufacture fibers (wool) industry" are summarized.

Reclamation of wool fibers. N. C. Gee. *J. Textile Inst. 41,* P192-201 (May 1950).

This discussion of the reclamation of wool fibers covers the following topics: historical record; sectionalization of the industry; rag sorting; carbonizing, shaking and washing; stripping and redyeing; rag pulling; flock making; garnetting; and current importance and future prospects.

REPORT OF THE DEVELOPING WORLD COTTON SITUATION. Part-A—Report on Ways and Means of Increasing Consumption of Cotton and of Balancing Production and Consumption. Washington, International Cotton Advisory Committee, 1950. Part A, 252 p.; Part B, 38 p. Price: $2.00. Available in English and French.

In Part A, a brief section on the "Supply and Distribution of Cotton—Past, Current and Prospec-

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tive" is followed by a study of "World Cotton Consumption and Factors Affecting It" by H. J. Kuhlmeyer. Next is a section on "Cotton Consumption Patterns and Standards," prepared by Gerda Blau, and a section on "Synthetic Fibers, Plastic Materials, and Paper, as Competitors of Cotton," by Robt. B. Evans. Part A also contains a report on "New Uses for Cotton and Cotton Manufactures and How they Can be Promoted," by Leonard K. Smith. This is followed by a "Review of Governmental and Private Procedures and Policies to Promote Consumption of Primary Commodities: Their Applicability to Expansion of Cotton Consumption," and by a report on "International Arrangements for Expanding Consumption of Primary Commodities." Also contained in the first volume is a special statement on "Cotton Price Support Programs in the United States" by C. D. Walker, an analysis of "Cotton Supply and Demand in Relation to Cotton Prices," and comprehensive cotton consumption and price statistics. The second volume of the Report, Part B, was prepared in compliance with a resolution requesting suggestions for ways and means of bringing about (a) an increase in the consumption of cotton and cotton products, and (b) an adequate balance between production and consumption of cotton. Following a brief review of the present world cotton situation, there is a discussion of "measures deserving consideration with a view to developing suitable international action on cotton," including: development of underdeveloped countries; supply of cotton at concessional prices with appropriate safeguards; exchange of longer staple varieties of cotton for short staple cotton; international cotton agreement; and, multilateral exchange of commodities. Part B concludes with conclusions and recommendations regarding cotton consumption, production, prices, and international trade. Both parts of the report were prepared for consideration by the Ninth Plenary Meeting of the Committee recently held in Washington.

Some frictional properties of wool and nylon fibers. C. King. *J. Textile Inst. 41,* T135-44 (Apr. 1950).

The frictional coefficients for clean wool and nylon fibers rubbing on other surfaces was measured using a slip stick technique. The effect of surface roughness on the directional frictional effect of the wool fiber was also examined. The action of swelling agents on the frictional coefficients of wool and nylon suggest a close relationship between the elasticity of the rubbing materials and their coefficient of friction. The relationship between frictional coefficient and normal pressure is discussed.

TECHNOLOGICAL REPORTS ON STANDARD INDIAN COTTONS, 1949. By D. L. Sen. (Technological Bulletin, Series A, No. 72. Indian Central Cotton Committee Technological Laboratory). Bombay, British India Press, 1949. 75 p. Price: Rel-8.

TECHNOLOGICAL REPORTS ON TRADE VARIETIES OF INDIAN COTTONS, 1949. By D. L. Sen. (Technological Bulletin, Series A, No. 73. Indian Central Cotton Committee Technological Laboratory). Bombay, British India Press, 1950. 91 p. Price: Rs2.

Wool fiber diameter uniformity. P. Larose. *J. Textile Inst. 41,* T173-77 (May 1950).

Reports studies made by the National Research Council (Canada) of wool fiber diameter uniformity. Data are given on measurements and standard deviation. The sampling technique used is noted.

Artificial fibers A 2

Acyloxyvinyl alkyl sulfones and polymers thereof. Jos. B. Dickey & Harry W. Coover, Jr. (to Eastman Kodak Co.). USP 2 507 147, May 9, 1950.

Tough fibers are produced from a copolymer of acrylonitrile and alpha-acyloxyvinyl ethyl sulfone.

Articles composed of crystalline and oriented polymers and copolymers of 2,3-dichloro-butadiene-1,3. Leroy B. Kuhn (to The Firestone Tire & Rubber Co.). USP 2 514 195, July 4, 1950.

Filaments are produced from various polymers of 2,3-dichlorobutadiene-1,3, copolymers thereof and after-chlorinated products thereof.

Artificial fibers. Geo. E. Ham (to Monsanto Chemical Co.). USP 2 498 605, Feb. 21, 1950.

A solution of a polymer of acrylonitrile or copolymer thereof in maleic anhydride or succinic anhydride adapted to be spun into fibers.

Japs report new fiber. Anon. *Textile Age 14,* 7 (June 1950).

Note: Vinylon, a new fiber manufactured synthetically in Japan from limestone and carbon is being hailed in that nation's textile industry as the most revolutionary development in years. Items planned for forthcoming production include fishing nets and ropes, clothing fabrics, raincoats, umbrellas, knitting yarn and sewing thread,

sheets, curtains, carpets and surgical sewing thread. The new fiber made its initial appearance in Japan in 1939 following nearly 10 years of intensive and continual research. Spurred by nylon's appearance in the United States and Germany's development of PeCe, efforts were redoubled and in 1939 the yarn was introduced as Gosei-ichigo and Kanevivyan and later changed to Vinylon.

Cellulose filaments and method of producing same. Wm. D. Nicoll (to E. I. du Pont de Nemours & Co.). USP 2 515 834, July 18, 1950.

A regenerated cellulose filament having a nonuniformity of structure between the exterior and interior portions of the filament and having a difference of structure occurring across the filament, the filament having the characteristic when straight, of spontaneously crimping upon being suspended, free of tension in an aqueous liquid.

Compositions comprising polymeric triazoles dissolved in oxynitriles. Jas. W. Fisher & Edw. W. Wheatley (to Celanese Corp. of Am.). USP 2 512 625, June 27, 1950.

Compositions for spinning filaments comprising a linear poly-1,2,4-triazole and, as solvent, an oxynitrile.

Condensation of linear 1,2,4 triazole with aldehyde, diisocyanate, or diurethane. Jas. W. Fisher, Edw. W. Wheatley, & Harold Bates (to Celanese Corp. of Am.). USP 2 512 634, June 27, 1950.

Fibers or films of copolymers containing both 1,2,4-triazole links with carboxylamide links in the linear chain are reacted with aldehydes, diisocyanates or diruethanes to raise the melting point and the ironing point of textiles made from the fibers.

Copolymer of vinyl fluoride and chlorotrifluoroethylene. Wm. E. Hanford (to E. I. duPont de Nemours & Co.). USP 2 513 312, July 4, 1950.

A copolymer of vinyl fluoride and chlorotrifluoroethylene is useful for the production of fibers, film and the like.

Copolymers of acrylonitrile and isopropenyl acetate. John R. Caldwell (to Eastman Kodak Co.). USP 2 514 624, July 11, 1950.

Fibers and filaments may be made from a copolymer of 55-96% by weight of acrylonitrile and the balance of isopropenyl acetate.

Copolymers of allyl esters. David E. Adelson & Hans Dannenberg (to Shell Development Co.). USP 2 514 354, July 11, 1950.

Fibers and filaments may be formed from a copolymer of diallyl carbonate and either diallyl adipate or diallyl phthalate.

Evaluation of synthetic fibers and textiles, German and American. R. J. Jokl. Polamold Research Laboratories, Inc., Springfield, Ohio. PB 100 624, Jan. 1948. 29 p. tables. *Bibl. of Technical Reports 14*, 38 (July 14, 1950). Microfilm $2.00, Photostat $3.75.

A comparison and evaluation is made of German and American synthetic fibers and fabrics of the following types: nylon, rayon, viscose rayon, cuprammonium rayon, fortisan, rayon finish, vinyl resins, vinylidene chloride, protein, glass, an dalginate. Prior to the war, German research and developments generally paralleled that of the United States. In nearly every plant during the war, emphasis was placed on greater production and quality was sacrificed for quantity; substitutes had to be found for critical materials. No interesting technical developments in machinery or processes were observed. However, a German manufacturer's research laboratory had developed an excellent rayon-finish crease-resistant and water-repellent material. An outline of new developments and trends is presented to indicate future possibilities of synthetic fibers and textiles.

FIBER PROPERTIES OF ORLON, ACRYLIC FIBER. Technical Manual 65. Acetate Division—Rayon Department, E. I. duPont de Nemours & Co. (Inc.), Wilmngton, Del.

This technical manual on "Orlon" acrylic fiber is designed primarily for those engaged in processing the fiber into fabrics. Subjects included are: chemical resistance; description of the fiber; effect of miscellaneous conditions; physical properties; resistance to sunlight, weathering, and industrial fumes; effect of temperature; and effect of twist.

Hollow filament type rayon yarn. Anon. *Am. Wool Cotton Reptr. 64*, 9, 42 (July 6, 1950).

Featheray, a hollow filament type rayon yarn, is exceedingly light weight with exceptional covering capacity. Properties of this new yarn are described.

Hydrazine polymers. Jas. W. Fisher & Edw. W. Wheatley (to Celanese Corp. of Am.). USP 2 512 631, June 27, 1950.

Filaments, films or other articles of poly-4-amino-1,2,4-triazoles are heated with hydrogen or ammonia to render the polymer resistant to hydrolysis by hydrochloric acid.

Interpolymers of esters of azobisformic acid. Robt. M. Joyce, Jr. (to E. I. du Pont de Nemours & Co.). USP 2 507 718, May 16, 1950.

Fibers are obtained from a copolymer of tetrafluoroethylene and a diethyl azobisformate.

Linear nitrogen-containing polymers. Robert W. Moncrieff (to Celanese Corp. of Am.). USP 2 512 667, June 27, 1950.

A dihydrazide of a dicarboxylic acid is reacted with hydrazine to produce a polymer resistant to hydrolysis by hydrochloric acid which has fiber-forming properties.

Linear polyesters. H. Batzer. *Die Makromolekulare Chemie 5*, 5-82 (June 1950); *in German.*

By a new method of polycondensation and fractionization, some polyesters having a mol. wt. of 1,000,000 were obtained. Mol. wt. determinations were made on the various products by osmosis and terminal groups. It was shown that these polyesters are polycondensed without ramification. For these polyesters Staudinger's simple viscosity law is not valid, only a potential law such as that by Debye and Sadron. The properties of fibers obtained with these polyesters are studied.

N-acyl derviatives of polyvinylamine. Delbert D. Reynolds & Wm. O. Kenyon (Eastman Kodak Co.). USP 2 507 181, May 9, 1950.

N-acyl derivatives of polyvinylamine are suggested for the formation of synthetic fibers and films.

New Dynel fiber increases fabric variety. Anon. *Am. Wool Cotton Reptr. 64*, 47, 49, 57 (July 13, 1950).

Progress in producing Dynel fabrics (Vinyon Type N) is reviewed, and the characterics and processing of Dynel fabrics are discussed. Increasing use for these fabrics is being found in auto upholstery, insulation, draperies, and blankets.

New Fiber V. What is its future? Anon. *Am. Wool Cotton Reptr. 64*, 8-9 (July 6, 1950).

The properties and possible uses of Fiber V, or Terylene, are evaluated. All the work being done, the samples being made, etc. are now on an entirely experimental basis. Commercial production for Fiber V will depend on the results of future research.

New rayon carpet fiber. Robt. A. Smith. *Am. Wool Cotton Reptr. 64*, 35 (July 13, 1950).

Avisco "15" is a crimped 15.0-denier viscose rayon fiber of dull luster produced in 3-inch lengths and developed for use as a pile carpet fiber. When blended with wool in carpets, it produces more uniform quality, reduces damage in scouring and dyeing, etc.

Orlon analyzed. Anon. *Am. Wool Cotton Reptr. 64*, 17, 75-7 (July 13, 1950).

The early development, present technical position, properties, and production outlook of Orlon are analyzed.

Polyamides and method for obtaining same. Elmer K. Bolton & Wm. Kirk, Jr. (to E. I. du Pont de Nemours & Co.). USP 2 512 606, June 27, 1950.

A nylon type of polymer for production of fibers obtained by reaction of a dicarboxylic acid with a di(p-aminocyclohexyl) methane.

Poly-4-amino-triazole compositions. Jas. W. Fisher, Edw. W. Wheatley, & Harold Bates (to Celanese Corp. of Am.). USP 2 512 629, June 27, 1950.

A fiber spinning solution comprising cellulose acetate and a poly-4-amino-1,2,4-triazole for imparting affinity to acid wool colors.

Polytriazole compositions. Harold Bates, Jas. W. Fisher & Edw. W. Wheatley (to Celanese Corp. of Am.). USP 2 512 599, June 27, 1950.

Filaments are spun from a solution of a linear poly-1,2,4-triazole in an alcohol containing not over eight carbon atoms.

Process of making artificial wool from nylon fibers. Boynton Graham (to E. I. du Pont de Nemours & Co.). USP 2 516 562, July 25, 1950.

A process for obtaining improved nylon filaments having a wool-like crimp.

Processes for producing copolytriazole-amides. Jas. W. Fisher & Edw. W. Wheatley (to Celanese Corp. of Am.). USP 2 512 627, June 27, 1950.

A nylon type of polymer is obtained by reacting a polytriazole with a bifunctional amide-forming reagent, such as diamine dicarboxylic acid or the like. The products are useful for spinning filaments.

Process of treating polytriazoles. Jas. W. Fisher, Edw. W. Wheatley, & Harold Bates (to Celanese Corp. of Am.). USP 2 512 628, June 27, 1950.

Films and filaments of a linear poly-4-amino-1,2,4-triazole are reacted with an acylating agent or

an aldehyde to increase their melting points or decrease their moisture regain or to render them completely insoluble in organic solvents and infusible.

Production of nitrogen-containing polymers. Jas. W. Fisher & Edw. W. Wheatley (to Celanese Corp. of Am.). USP 2 512 626, June 27, 1950.

A polyaminotriazole is rendered fusible and soluble to adapt it for the production of filaments by heating in an inert organic liquid diluent.

Production of nitrogen-containing polymers. Jas. W. Fisher & Edw. W. Wheatley (to Celanese Corp. of Am.). USP 2 512 632, June 27, 1950.

A copolymer of the nylon type suitable for the production of filaments is obtained by heating together a dihydrazide of a dicarboxylic acid, a diamine, and a dicarboxylic acid.

Spinning process and compositions. Theron G. Finzel & Gaetano F. D'Alelio (to industrial Rayon Corp.). USP 2 515 206, July 18, 1950.

Fibers and filaments are produced from a ternary polymer of 78 to 82% acrylonitrile, 3 to 7% vinylidene chloride, and about 15% vinyl chloride.

Structure of alginate fibers. E. E. Tallis. *J. Textile Inst. 41,* T151-57 (Apr. 1950).

The structure of alginate fibers is discussed and the work and theories of a number of investigators are noted.

Synthetic fibers and fabrics gain increasing acceptance. Anon. *Am. Wool Cotton Reptr. 64,* 13-14, 71, 73 (July 13, 1950).

The growing number of synthetic fibers, their properties and uses is discussed.

Synthetics entering exciting era. Marshall L. Phelps. *Am. Wool Cotton Reptr. 64,* 25, 79-81 (July 13, 1950).

The possibilities of synthetic fibers that are now available and future possibilities for these fibers are discussed.

Treatment of triazole polymers. Jas. W. Fisher, Harold Bates, & Edw. W. Wheatley (to Celanese Corp. of Am.). USP 2 512 624, June 27, 1950.

An insoluble and infusible polymer containing 4-amino-1,2,4-triazole rings is hydrolyzed to provide a soluble and fusible form adapted to the production of filaments.

Will Orlon be the fiber of the year? Anon. *Am. Wool Cotton Reptr. 64,* 15-16, 73-4 (July 13, 1950).

Outstanding characteristics of Orlon are reviewed, and the expanding uses for Orlon are discussed.

YARN PRODUCTION B

Carding, spinning and controls. *Am. Wool Cotton Reptr. 64,* 11-12 (July 27, 1950).

A report on the questions taken up and the answers given by several mills on carding, spinning, and technical controls at a meeting of the Northern Carolina-Virginia Division of the Southern Textile Association is presented.

Case history of the sickness and recovery of a textile mill. I—The diagnosis and cure of the many difficulties found in the opening and picking departments. II—Waste inspection provides clue to program of rehabilitation in the card room of this sheeting mill. Jas Osborne. *Textile Age 14,* 54-7 (May 1950); 40-3 June, 1950).

Part 1—Causes of poor quality goods, decline in warp and filling strength, yarn appearance, and the quality of weaving in a mill making sheets are discussed. A program for remedying these troubles is described, beginning with difficulties found in opening and picking. Par 2—The overhauling and reconditioning program for the card room of a sheeting mill is described.

Causes and effects of yarn irregularities. Anon. *Textile Mfr. 76,* 315-20, 322-26 (July 1950).

Abstracts of 8 of the 17 papers presented at the annual conference of the Textile Institute, held at Cheltenham, June 6-10, are presented. The papers abstracted are as follows: "A Review of the Causes of Yarn Irregularity", by J. G. Martindale; "The Causes of Irregularity of Cotton Yarns", by G. A. R. Foster; "Some Causes of Irregularity in Worsted Drawing and Spinning", by D. R. Cox & J. Ingham; "Some Causes of Woolen Yarn Irregularities", by G. H. Thorndike; "Yarn Irregularities and Their Effect on Viscose Rayon Fabrics", by R. A. McFarlane; "A Study of the Irregularities of French Drawn Rovings and Yarns", by P. P. Townend & T. S. Chow; "Silk Yarns: Some Inherent and Processing Irregularities", by V. Castle; "Defects in Knitted Structures", by E. M. Walker & C. E. Sleath.

Causes of yar nirregularity. Anon. *Textile Recorder 68,* 61-3 (July 1950).

Brief abstracts are given of the papers presented

at the annual conferece of the Textile Institute.

Fibrogram: investigations on the influence of fiber length and its distribution, on the working progress in Paul's draw field, and on the properties of yarn and fabric. Stig. Löfgren. PB 100 796, 1950. 144 p. photos, diagrams, graphs, tables. *Bibl. of Technical Reports 14,* 48 (July 14, 1950). Microfilm $5.75, Photostat $18.75.

See TTD: 7, 517.

Improve mill operations to cut costs, speed production. Anon. *Am. Wool Cotton Reptr. 64,* 9-10, 13-14 (Aug. 3, 1950).

Current operations in cotton textile mills, including carding, spinning, winding, etc., are discussed in this report on the meeting of the Textile Operating Executives of Georgia.

Irrigated cotton. Lyle E. Hessler, *Textile Industries 114,* 81-3 (July 1950).

Basic information on the various fiber properties, including length, length uniformity, strength, fineness, and degree of maturity, which affect the spinnability of cotton is reviewed. The processing of irrigated cotton is also discussed.

Key increased production to improved mill methods. Anon. *Am. Wool Cotton Reptr. 64,* 9-11, 44 (July 20, 1950).

A condensed report on the discussions of carding and spinning practices at a meeting of the Textile Operative Executives of Georgia is presented.

Modified worsted yarn processes. N. A. Whiffen. *Textile J. Australia 25,* 158-66, 193-94 (Apr. 1950).

The development of modified worsted processes is reviewed. They are of 2 forms: 1) the changes in procedure in the normal processes made possible by high-draft spinning, and a reduction in the number of operations, and 2) the modifications brought about by introducing new types of machinery at various stages. A summary of the data obtained from a comprehensive investigation of yarn quality using modern American equipment is also provided. Using 4 grades of Australian wool tops, a series of yarns was produced in the U.S.A. and Australia using various modified processes as well as existing standard practice. Evaluation of these yarns indicates that those made with less operations and fewer doublings are equal in quality to good commercial yarns.

New fibers bring new spinning problems. Anon. *Am. Wool Cotton Reptr. 64,* 19-20, 77 (July 13, 1950).

Processing methods for synthetic fibers, including blending, carding, drawing, roving, and spinning are outlined. Problems not only of a technical nature, but also economic must be considered in the processing of synthetics with experience and skill needed to solve them.

Process of preparing fibers and yarns. Ralph E. Montonna, Lloyd H. Reyerson & Elias Amdur (to Regents of the Univ. of Minnesota). Can. P. 462 570, Jan. 17, 1950.

The process of preparing fine linen yarns from mature, dry flax straw which comprises decorticating the straw to free the bast fibers from the shivey material and forming a roving of the bast fibers so separated, winding the material and forming a roving of the bast fibers so separated, winding the roving on perforated bobbins, washing the roving with water for about 5 min. at 100°C by forcing the water through the roving on the bobbin, rinsing the roving in cool water and then draining it, then treating the roving with an oxidizing solution prepared by using .05 lbs. of sodium chlorite and .05 lbs. of acetic acid and 10 lbs. of water for each lb. of roving, dry weight, the oxidizing solution being pumped through the roving for about 15 min. while maintaining the temperature of the solution at about 95°C, rinsing the roving in plain cold water, treating the roving with about 10 lbs. of approximately 1% sodium hydroxide solution by pumping the same through the roving for about ½ hour while maintaining the temperature at about 95°C and then after rinsing the roving in cold water and while the roving is still wet, drafting and spinning the roving into linen yarn.

Processing rayon staple fiber and blends on the woolen system. R. Dicker. *Rayonne 5,* 53-9 (July 1949); 45-51 (Aug. 1949); 83-7 (Sept. 1949); 49-53 (Oct. 1949).

The selection of staple fiber fineness, length, and luster for processing on the woolen system in staple rayon/wool blends is discussed. Opening and oiling of pure staple rayon and rayon/wool blends is considered. Automatic oiling and blending systems, with special reference to American practices, are described and illustrated. American and Belgian methods are compared.

Single drafting systems. Arlington Boylston. *Rayon & Syn. Tex. 31,* 22-4 (Aug. 1950).

Discusses the technical difficulties involved in the

processing of various fibers on a single system. The versatility of new equipment has limitations both technical and economic. A mill can be set up to process a large variety of fibers and counts but it will require a major investment in gearings, rings, and other machine parts. It is doubtful if such a mill could compete on a price basis with mills specifically set up to produce a specialized type of yarn, using a particular group of fibers.

Some properties of wool/nylon staple mixture yarns and cloths. P. P. Towend & A. B. Marsden-Smedley. *J. Textile Inst. 41,* T178-91 (May 1950).

A series of 1/30s worsted yarns of varying wool/nylon staple fiber content was drawn and spun using the continental system; each blend was spun with 5 twists varying from 10 to 30 tpi. Yarns were tested for strength and extension at break in the dry and wet states and cloths made from the same yarns were subjected to rubbing tests. In the dry state, additions of nylon staple fiber to wool brought about a continued increase in yarn strength. Altering the amount of twist in the yarns also caused an increase in their strength, a maximum being reached at about 20 tpi; strength increase due to increments in twist was small compared with the effect of increasing the nylon content. The same trends were noted for yarns twisted in the wet state. Dry yarns were stronger than wet yarns and the difference between yarns of the same twist content was independent of fiber content. Twist content had small effect on extension at break of both wet and dry yarns; wet extension was always greater than the dry but difference in extension was considerably affected by fiber content.

Spinning cotton/rayon staple blend knitting yarns. J. A. K. Buisman. *Enka en Breda Rayon Rev. 3,* 106-12 (1949); *in Dutch.*

The choice of rayon staple fiber of suitable characteristics is considered, and the different points at which blending can be done (e.g., the bale opener, finisher-scutcher, and draw-frame) are discussed. Tinting of the blend components and the processing of the blend is discussed with reference to spinning a 30s yarn of 67% 1 in. cotton and 33% 38 mm. 1.5 den. rayon staple.

Strength of spun rayon yarns. F. H. A. M. Klompe. *Enka Breda Rev. 4,* 61-5 (June 1950); *in Dutch.*

The author gives a survey of the way in which various factors (fiber length, fiber denier, yarn

count, twist coefficient) influence the tensile strength of a spun rayon yarn as contributing factors of the degree to which the original fiber strength is used effectively in the spun fiber yarn. The data have been taken from experiences gained in the rayon-staple yarn research spinning department of the Enka concern at Arnhem.

Fiber preparation B 1

Method of separating fibers. Robt. A. Fairbain (to Forte, Dupee, Sawyer Co.).

Method of preparing for textile use cashmere and similar fleeces including relatively coarse and fine fibers which comprises subjecting a web or film of coarse and fine fibers to a dividing operation wherein at least the majority of the coarse fibers are divided into short lengths but leaving at least the majority of the fine fibers of greater length than the short lengths of coarse fibers, the thickness of the web or film not exceeding the thickness of a web or film produced by a card.

Natural fibers crimped to order. Paul M. Platzman. *Textile Industries 114,* 84-8 (July 1950).

"Textralizing" is a process that permits crimping of natural fibers permanently on a practical, production-line system at low operating costs. The major components of the Textralizing process machine and its operation are described. The advantages in crimping reflected in carding, spinning, and product design are discussed. The Textralizing process may be applied not only to wool fibers, but also silk, cotton, mohair, and a number of synthetic fibers.

Nylon and wool blends. R. L. Wentz. *Am. Wool Cotton Reptr. 64,* 23, 79 (July 13, 1950).

Abrasion resistance and strength may be added to the desirable qualities of wool by the proper blending with nylon. The fibers must be blended in such a way that they complement each other; and fabric construction, weave, and desired end uses must be considered. Factors in the blending of nylon and wool are discussed.

Present and future methods of separating textile fibers. J. B. Speakman. *J. Textile Inst. 41,* P202-07 (May 1950).

In the past, the reclamation of wool from rags has involved nothing more than treatment with acids, usually hydrochloric acid gas, under conditions which carbonize cotton, but have little harmful effect on wool. The increasing use of synthetic fibers in blends with wool presents new problems in reclaiming fibers. A number of suggestions are

given for new methods of destroying synthetic fibers in order to reclaim the more valuable fibers for reuse.

Carding and combing B 2

Announcing an improvement in revolving flat cards. Anon. *Whitin Rev. 17*, 22-3 (Mar.-Apr. 1950).

A note announcing new card flats made from rolled steel with ends, or lugs, of a special material which provide the wearing quality of conventional cast iron flats. The steel from which the new flats are fabricated is said to be 2½ times as stiff and rigid as cast iron. Greater precision of operation and therefore better carding is said to result from the use of the new flats.

Are neps like the weather? Anon. *Textile Industries 114*, 156-57 (Aug. 1950).

Discusses the problem of neps and efforts made by one mill to reduce them. The only thing tried that resulted in a worthwhile reduction of neps was a nep contest among grinders. Nep counts were made and awards made to grinders showing a reduction of neps to a certain figure. Nep reduction was attributed to better grinding, more careful settings, and better all around attention to the cards.

Comments on grinding cards. Anon. *Textile Industries 114*, 155-56 (Aug. 1950).

This is a detailed practical discussion of card grinding.

Georgia operating executives compare carding methods. Anon. *Am. Wool Cotton Reptr. 64*, 10-11 (July 6, 1950).

A condensed report on the discussion of carding methods at a meeting of the Textile Operating Executives of Georgia is given.

Improved stock carding. Anon. *Am. Wool Cotton Reptr. 64*, 43 (July 6, 1950).

The use of the fancy roll on the standard card is reported to improve the working of the card when processing cotton, synthetics, and blended stocks. The fancy assembly and its operation are described.

Method and apparatus for removing burrs and other vegetable defect from textile fibers. Robt. A. Fairbairn. USP 2 513 301, July 4, 1950.

The method of treating discontinuous textile fibers preparatory to removing foreign bodies therefrom comprising forming the mingled fibers and foreign bodies into a coherent web of the character of a web normally produced by a carding machine, the web being a plurality of fibers in thickness, advancing the web at a predetermined speed, causing the fibers to cling to a surface in the presence of moisture, advancing the surface at a greater surface speed than the surface speed of the web, whereby the fibers clinging to the surface are formed into a film of substantially single fiber thickness wherein the majority at least of the fibers are separated laterally from each other and extend in a direction predominantly parallel to the direction of movement of the surface, advancing the film on the surface and subjecting the film to the pressure of a rigid member against the surface, whereby many of the foreign bodies are disintegrated into fragments.

Method and apparatus for separating fibers. Robt. A. Fairbairn. USP 2 513 300, July 4, 1950.

Method of preparing for textile use cashmere and similar fibers including intermingled coarse and fine fibers which comprises, forming the fibers into a film or web, flexing the film or web to cause portions of a plurality of the coarse fibers to project outwardly beyond the fine fibers, gripping the projecting portions of the coarse fibers as by the bite of a pair of contacting rolls rotating in opposite directions and withdrawing the gripped coarse fibers.

Method and apparatus for separating foreign materials from fine fibers. Robt. A. Fairbain. USP 2 513 297, July 4, 1950.

The method of separating foreign material from fine fibers comprising the steps of forming the intermingled fine fibers and foreign material into a web of the character of a web produced by a carding machine, advancing the web at a predetermined speed upon a retentive surface, such as upon the surface of a rotating cylinder provided with card clothing, with one side of the web exposed, concomitantly straightening the fine fibers, removing the web from the retentive surface and advancing it at a surface speed of from 4 to 10 times greater than the surface speed of the retentive surface and within the range of from about 400 to 1200 ft. per minute whereby much of the foreign material is thrown free from the fine fibers substantially at the region of removal of the web from the surface, and conducting the freed foreign material to a locality remote from the fine fibers thereby to permanently separate it therefrom.

Method and apparatus for separating foreign ma-

terials from fine fibers. Robt. A. Fairbairn. USP 2 513 298, July 4, 1950.

The method of separating foreign material from fine fibers comprising the steps of forming the intermingled fine fibers and foreign material into a web of the character of a web produced by a carding machine, advancing the web at a predetermined speed upon the bristles of a first rotating brush with one side of the web exposed, concomitantly straightening the fine fibers, removing the web from the bristles and advancing it at an accelerated speed by subjecting the web to the action of the bristles of a second brush rotating at a surface speed which is substantially greater than the surface speed of the first brush whereby much of the foreign material is thrown free from the fine fibers substantially at the region of removal of the web from the bristles of the first brush and conducting the freed foreign material to a locality remote from the fine fibers thereby to permanently separate it therefrom.

Method and apparatus for treating cashmere or similar fleeces. Robt. A. Fairbairn. USP 2 513 299, July 4, 1950.

Method of treating cashmere or similar fleeces comprising intermingled coarse stiff fibers and fine crimpy fibers comprising passing to a cutting zone an aggregate of intermingled fibers in which the majority of the crimpy fibers are in substantially retracted condition, severing the aggregate at intervals which are spaced apart a greater distance than the average length of the retracted crimpy fibers but less than the average length of the coarse stiff fibers, whereby the average length of a substantial portion of the coarse stiff fibers in the resultant aggregate is less than the average extended length of the majority of the fine crimpy fibers, forming the resultant aggregate into a web or film of the character of a web or film produced by a carding machine, treating the web or film to remove a substantial portion of the shorter stiff fibers and collecting the residue which comprises longer crimpy fibers.

Method and machine for forming heavy sliver laps. Thos. S. Ramsdell. USP 2 513 893, July, 4, 1950.

The method of forming a heavy sliver lap many times the thickness of an ordinary web and having considerable tensile strength both longitudinally and transversely of the lap, the method comprising feeding a web such as produced on a card doffer and having its fibers disposed in a substantially unidirectional relation to a condensing means moving in the same general direction as the unidirectional fibers of the web, but at a slower rate than that at which the web is fed thereto, while at the same time imparting a relative transverse movement between the web being fed and the condensing means so that a substantial portion of the fibers of the web will have their normally unidirectional relation rearranged to a substantially criss-cross relation as the web is deposited and built up in thickness on the condensing means, and then stripping the condensed built-up sliver lap of criss-crossed fibers from the condensing means.

Receiver for pneumatic card strippers and the like. Chas. E. White & Fred H. White (to Abingdon Textile Machinery Works). USP 2 505 873, May 2, 1950.

Apparatus for progressively delivering fiber from a receiver, for a pneumatic card stripper or the like, having a fiber-collecting chamber and a dust-receiving chamber having screened communication therewith, means for admitting fiber and dust-laden air into the fiber-collecting chamber, and means for exhausting air from the dust-receiving chamber to maintain a substantially uniform degree of partial vacuum in the chambers, which apparatus comprises a tubular discharge conduit communicating with the fiber-collecting chamber and having a restricted outlet and continuously operating means for compacting the fiber in the discharge conduit with force sufficient so to condense the fibers therein as to prevent entrance of enough air therethrough to reduce substantially the uniform degree of partial vacuum maintained in the chambers.

Tape condenser. John T. Drennen (to American Viscose Corp.). USP 2 513 405, July 4, 1950.

Smooth-surfaced artificial fibers, especially of synthetic resins, are prevented from adhering to the lands of the bottom dividing roll of a tape condenser by means of suitably directed blasts of air.

Wool carding. Load on swift. John R. Hind. *J. Textile Inst. 41,* T192-94 (May 1950).

In a communication to the editor, the author suggests that it would be of great assistance to workers on carding problems if the load on the swift were recorded in grams per one revolution; and that it would help towards the solution of output problems in carding if an investigation could be made where the weight, number and length of the fibers could be determined at the swift-worker line of contact.

Drafting and roving B 3

Apparatus for imparting false twist to strands. Boutwell H. Foster & Harold T. Battin (to U. S. Rubber Co.). USP 2 515 299, July 18, 1950.

Apparatus for imparting a false twist to a textile strand, comprising a casing having a passage therethrough through which the strand may pass freely, means for supplying a fluid to the casing under pressure and for causing it to rotate in the casing about the strand in direct contact therewith to impart false twist to the strand, and strand advancing means for positively pulling the strand away from the casing.

Drawing frame maintenance. Wm. J. Langlois. *Whitin Rev. 17,* 32-6 (May-June 1950).

This discussion of drawing frame maintenance covers the following topics: piecing, machine maintenance-cans, inspecting the rolls, clearers, can table, and lubrication.

Dye and oil control unit insures improved fugitivity. Anon. *Am. Wool Cotton Reptr. 64,* 13-14 (July 27, 1950).

In mills where many blends of fibers, counts, and twists of yarn are running side by side, sighting colors have been found necessary to keep lots separate. A description is given of a simple, clean control-spray method, used by Bachmann Uxbridge Worsted Corp., for evenly applying both tint and oil at the first pin drafter operation to assure better fugitivity.

Spinning B 4

Clearer for the top drawing rollers of spinning machines. Otis P. Hord & Hubert M. Hurst. USP 2 513 872, July 4, 1950.

In a spinning machine having a top drawing frame, drawing rollers carried by the frame and upwardly projecting guides on opposite ends of the frame; a clearer comprising an elongated slat of transparent material, notches in each end of the slat receiving the guides, transversely spaced apertured brackets carried by the slat adjacent one end thereof, transversely spaced slotted brackets carried by the slat adjacent the other end thereof, felt covered spaced parallel clearing rollers adapted to engage the drawing rollers, trunnions at the ends of the clearing rollers suported in the apertured and slotted brackets, and resilient means in the slotted brackets for detachably retaining the trunnions received in the slotted brackets.

Driving mechanism for twister tube type of spinning frames. John A. Kooistra (to Davis & Furber Machine Co.). USP 2 506 155, May 2, 1950.

Provides a simple and efficient mechanism by means of which the direction of rotation of the spindles may be reversed to change from that required to give a right hand twist to the yarn to that required to give a left hand twist, or vice versa, without changing or affecting the direction of rotation of the twister tubes and by means of which the speed of rotation of the spindles and the speed of rotation of the twister tubes may each be controlled or adjusted independently of the other.

Method and apparatus for cleaning spinning frames. Carroll de V. Miller & Francis N. Becker (to The Am. Monorail Co.). USP 2 516 475, July 25, 1950.

A cleaner for a textile machine comprising a hollow body disposed longitudinally within the underframe of the machine, the body having an inlet for air, and nozzle means for directing a stream of air outwardly therefrom against a longitudinally short portion of the sides of the underframe to dislodge lint therefrom.

Ring spinning apparatus. Nikolai Reinfeld. *Melliand Textilber. 31,* 313-17 (May 1950); *in German.*

The theory of winding of the ring spinning machine is derived generally in a simple way from the theory of winding on the flyer frame, although the structure of the packages turned out by the 2 machines is fundamentally different. The present article deals purely kinematically and mathematically with the procedure during a single traverse of the ring rail and derives the laws of the motion of the ring rail and of the traveler.

Ring spinning of woolen yarn. E. Ullrich Vdi. *Melliand Textilber. 31,* 317-18 (May 1950); *in German.*

Irregular condensed sliver yarn is spun out uniformly on the woolen mule, because the thin yarn places are the first to close, so that the carriage draft equalizes the thick places. The output of the mule, however, is low, operating costs are high, and much space is required, so that consequently many trials in different directions have been made with the object of spinning condensed sliver on the ring spindle. The ring spinning frame marketed by the Westdeutsche Spinnereimaschinenfabrik, Crefeld, supplied a uniform

woolen yarn without the auxiliary devices such as spinning tubes, pot spindles and so on hitherto used on ring spinning frames, which go to make them more expensive in consequence of the enhanced operating costs.

Spinning. V. Zotikov. *Rayonne 6*, No. 5, 89-93; No. 6, 81-90; No. 7, 61-5 (1950); *in French.*

Further extracts from *The Fundamentals of Spinning* by V. Zotikov (Moscow). The 3 chapters are entitled: "Reviews on the theory of drawing during spinnings", "General problems in the movement of fibers," and "The controlled movement of fibers in a 3-cylinder drawing system."

Splicing threads. Edw. J. Abbott (to Abbott Machine Co.). USP 2 515 172, July 18, 1950.

Method of splicing 2 threads of twisted fibers comprising removing twist from an end portion of each of the threads, drafting each untwisted end portion, and twisting the drafted end portions together, the drafting of the end portions being carried to an extent sufficient to represent a material reduction in thickness of the resulting splice, as compared to combining such end portions without drafting.

Stop motion protects fly frame gearing. Anon. *Textile Industries 114*, 107 (Aug. 1950).

If lint, hardened oil, or some other substance works itself into the gearing of fly frames; the tumbler shaft will fail to turn at the proper time, causing the builder motion to continue on past its proper point and not reverse itself. A simple and effective stop motion for the builder mechanism, designed to avoid this damage, is described.

Whitin-Climax ball bearing top rolls. Anon. *Whitin Rev. 17*, 5-9 (May-June 1950).

Features of the Whitin-Climax ball bearing top rolls are described and illustrated. Advantages claimed for the new rolls are reduced lubrication, cleaning, and maintenance costs on roving and spinning; the rolls are also said to produce higher quality yarns.

Winding and spooling B 5

Automatic hollow cop winder announced. Anon. *Whitin Rev. 17*, 1-4 (May-June 1950).

Describes features and gives dimensions of the Schweiter automatic hollow cop winder. The winder is fully automatic and high-speed; it is used for jute, hemp, paper, linen, carded wool, cotton or any coarse textile fiber. The use of hollow cops allows the loom to function at higher efficiency, and allows more yarn length in the shuttle.

Yarn tension equalizing means. Robt. H. Johnson (to Temple Full Fashioned Hosiery Mills, Inc.). USP 2 514 582, July 11, 1950.

In a textile apparatus a yarn tension equalizing device located in the path of travel of a yarn moving from a supply and comprising, a support, and a plurality of yarn tension equalizing elements of different weights a selected one of which is pivotally suspended on the support and has a portion at the free end thereof arranged to be engaged by the yarn during its feeding travel in such manner as to effect swinging movement of the element from a perpendicular position to a yarn tension equalizing position as determined by the pulling action exerted by the yarn during its feeding travel along the element portion.

Yarn processing B 6

Process of producing uniform low stretch cords. Geo. P. Bosomworth (to The Firestone Tire & Rubber Co.). USP 2 514 187, July 4, 1950.

A method of producing a uniform, low stretch cord suitable for reinforcing a rubber article, which consists in impregnating with an aqueous bath a textile cord capable of being swollen by water, applying to the wet cord a uniform predetermined high tension equal to 50 to 90% of the bone dry breaking strength of the untreated cord and drying the cord while maintaining it under the high tension, reducing the tension on the dry cord to a uniform predetermined low tension equal to 5 to 50% of the bone dry breaking strength of the untreated cord and impregnating the cord a second time with an aqueous bath while maintaining the cord under the low tension, and then drying the wet cord while maintaining it under the low tension.

Special yarns B 7

Bigelow's new Permaset yarn. Anon. *Am. Wool Cotton Reptr. 64*, 67 (July 13, 1950).

Features of a new carpet rayon fiber, Permaset, which is four to five times as strong as the rayon fiber used in clothing, are briefly described.

Technical information on Whitin fancy yarn twisters—II. Anon. *Whitin Rev. 17*, 17-31 (May-June 1950).

The technical details for making even twist spiral

yarn and uneven spiral yarns are considered.

"Novelty yarns" and the Whitin novelty yarn twister—I. Cyril Taylor. *Whitin Rev. 16*, 15-22 (Nov.-Dec. 1949).

Outlines briefly the history and origin of novelty yarns and illustrates and describes Whitin attachments that are used in their production.

Yarn products B 8

Magnetic drive for textile machines. Anker Petersen (to Petersen Braiding Machine Co.). USP 2 506 315, May 2, 1950.

Provides a magnetic drive for braiding machine carriers or the like which will be powerful enough to drive the braiding carrier at a very high speed, even though the carrier be of a size to support a bobbin of large capacity and which is also effective to start the carrier into operation without appreciable lag when the machine starts, and to stop the carrier without overtravel when the machine is stopped. The magnetic drive for a braiding machine carrier is so devised that ample magnetic driving force for each carrier is atained by the use of a single magnet in cooperation with a soft iron armature or armatures mounted on the carrier.

FABRIC PRODUCTION C

Fabric shrinkage. K. Dietz. *Melliand Textilber. 31*, 321-2 (May 1950); *in German.*

Practical determination of the material in warp and weft is indispensable in order to arrive at an accurate calculation of the goods. The present article deals with the most important points as they make their appearance up to the completion of the finished goods and lead to shrinkage in the loom and contraction in dyeing and finishing.

Warp preparation and weaving. Anon. *Am. Wool Cotton Reptr. 64*, 16, 35 (July 20, 1950).

A brief report is given of the discussions on warp preparation and weaving at a meeting of the Northern North Carolina-Virginia Division of the Southern Textile Association.

Yarn preparation C 1

Beam warper. Thos. E. Watson (to Cocker Machine & Foundry Co.). USP 2 515 385, July 18, 1950.

In a beam warper, in combination, a warp beam, means for rotating such beam, and a comb guiding the individual ends of yarn onto the beam and adjustable as a unit toward and from the beam into operatively fixed position.

Brushing yarn at slasher aids weaving. Anon. *Textile Industries 114*, 157-58 (Aug. 1950).

Discusses the use of a revolving brush installed on a slasher for laying the fibers on the yarn parallel to the thread while the yarn is still wet with size. The brush turns in the same direction in which the yarn moves, but at a slower speed so the yarns will drag through the bristles which impart a combing action. Use of the brush reduced shedding at loom as much as 75%; permitted the weaver to run 25% more looms without additional work; increased production 12½%; gave 2 lbs. per in. higher breaking strength, and .02 more weight per yard. The cloth also has a smoother face.

New slashers save space, labor and maintenance. W. J. Still & R. S. Young. *Textile Age 14*, 12-15 (July 1950).

A description of the Uxbridge Gentle Air Slashers with Westinghouse multi-motor drives, used at Borden Mills is given. Advantages listed for the new slashers include: savings in floor room space, improvement in quality and working conditions, increased speed, reduced handling costs, etc.

Process of sizing textiles and composition therefor. Richard R. Sitzler and Ralph H. Balch (to Celanese Corp.). USP 2 516 267, July 25, 1950.

Crepe fabrics are produced containing cellulose acetate yarns which, after sizing with a mixture of a water-soluble cellulose acetate and urea are crepe - twisted, are converted into the fabric and then treated in a hot aqueous bath.

Slashing discussion. Anon. *Textile Industries 114*, 105-9 (July, 1950).

A report on the slashing discussion at the spring meeting of the Alabama Textile Operating Executives is given.

Starch conversion by homogenization. L. H. Rees. *Am. Wool Cotton Reptr. 64*, 15-16 (Aug. 3, 1950).

The preparation of starch sizings by homogenization with the Gaulin process is described. Advantages of preparing starch by this method include increased slasher speeds and weaving efficiency; uniform viscosity; savings in starch, steam, labor, etc.

Starch handling equipment. Anon. *Textile Industries 114,* 105-06 (Aug. 1950).

A new system for automatically handling starch and water in the size cooking operation at Riegel Textile Corp. is reported to improve efficiency and cleanliness. A screw type conveyor moves the starch from storage bin to hopper and from there to cooking kettles. Automatic scales weigh the starch, and an automatic water meter pumps the desired number of gallons of water into the cooking kettle.

Weaving C 2

Construction of warp tapestry fabrics. J. Cowburn. *Textile Mfr. 76,* 331-33 (July 1950).

Discusses the 3-warp 3-weft structures which are a type using the least quantities of yarn; the 3 odd picks are easy to run on a pick-at-will-loom.

Design and production of figured double-plains. A. T. C. Robinson. *Skinner's Silk & Rayon Rec. 24,* 930, 936, 938, 941-42, 944 (July, 1950).

Most double-plains are made with one plain cloth in viscose and the other in acetate, so that 2-color designs can be obtained by cross-dyeing. The favorite colors are black/white and navy/white with other combinations such as navy/saxe, brown/beige and wine/grey in much smaller quantities. Many figured double-plains are reversible in the sense that either side can be used as the face. Design and production details are given for the following: some dobby designs, a crow's-foot design, a flat design, some jacquard designs, shaded designs, shading with other weaves, double-plains with lamé weft, laminette as extra weft, a cloque-type design, dyed yarn in double-plains, and a multicolor novelty.

Design and production of warp and weft rib fabrics. A. T. C. Robinson. *Silk & Rayon 24,* 788 (June 1950).

A detailed discussion is given of the design and production of the Bedford cord weave, flat yarn piques, crepe cotele, extra-warp figuring, fancy pique, jacquard figured pique, marocain faille, flexible ottoman fabrics, rayon-worsted ottoman, and fancy ottoman.

Fabric development. Frances Van Hall. *Rayon & Syn. Tex. 31,* 34-5 (Aug. 1950).

The work of the fabric development department of A. M. Tenney Associates is noted and a number of fabrics developed by the department are described and illustrated.

Filling thread tension device for looms. Saml. T. Bradley. USP 2 515 626, July 18, 1950.

A filling thread tension device adapted for tensioning the loose filling ends which result at transfer in a loom and thereby maintain the loose filling ends positively disposed for cutting by a temple knife, the device comprising an arm member adapted for attachment on a loom frame with an extending disposition reaching immediately below the normal path of filling thread across the lay of the loom, the arm member constituting the sole filling thread tensioning element of the device, and the arm member being formed with a plurality of transverse slots disposed for receiving and gripping the filling threads when they are shifted from their normal path at transfer, whereby the filling threads are retained under tension until cut by the temple knife.

Gaiting of new beams. M. M. Tiwari. *Indian Textile J. 60,* 499, 506 (Mar. 1950).

The steps necessary and the precautions required for the installation and gaiting of a new beam are described. Experience has shown that a 5% increase in efficiency, 20% decrease in damage, and 25% less stores is required if new beams are properly gaited.

Heddle bar support. Frederick M. Suchke (to Pioneer Heddle & Reed Co., Inc.). USP 2 514 298, July 4, 1950.

In a heddle frame structure having a frame member, a pair of heddle bars and heddles disposed between and engaging the bars; a supporting means for the heddle bars, the supporting means comprising a strap formed with a C-shaped opening in which the heddle bar is adapted to engage, a U-shaped slide member fixed at the bight thereof to the strap, the legs of the slide member being formed with T-shaped slots, and a T-shaped bar fixed to the frame and engageable with the slide member.

Letoff for looms. Wallace Hamilton (to Draper Corp.). USP 2 513 561, July 4, 1950.

A warp let-off mechanism for a loom.

Loom check linkage. Carl H. Bacon (to The Weatherhead Co.). USP 2 513 907, July 4, 1950.

According to this invention a picker head positively and accurately traverses a desired path by mounting the picker head upon a set of links, the mounting including a hydraulic check device arranged so that the check device is undisturbed

by pivoting of the picker stick. Briefly, this is accomplished by mounting the housing of a hydraulic check device on a bracket carried by the rock shaft. The lower end of the picker stick is guided by link means extending from the picker stick to the check mounting bracket. The upper end of the picker stick is guided by a link extending down from the lay to a midportion of the stick. In this manner, the check rocks with the shaft but is undisturbed by pivoting of the stick, so that the hydraulic fluid in the check is always properly disposed for best operating conditions.

Lug strap and method of making same. John E. Moe (to Jacobs Rubber Products, Inc.). Can. P. 462 825, Jan. 31, 1950.

A lug strap comprising a pair of arms formed with bolt slots and a metallic U-shaped portion overlapping the metal arm portions, combined with a resilient portion separating the overlapped metallic portions.

Novel multi-sectional loom with centrifugal weft supply. Anon. *Textile Recorder 68,* 78-9 (July 1950).

An entirely new type of weaving machine has recently been invented by Pierre Vanlaer, Le Cannet Rocheville (A.M.), France. It is termed a weaving turbine or a sectional loom with centrifugal weft drive and is a combination of the circular and orthodox types of loom with some additional characteristics. Essentially, the new machine consists of 4 straight-sided sections arranged for weaving vertically and grouped around a central vertical shaft which drives all the loom motions. Each section forms a complete weaving unit with a reed space which may be any suitable width up to the maximum of 141 in., giving a total available reed space of 47 ft. over the 4 sections. Although the experimental machine has 4 sections, either 5 or 6 sections could be grouped and operated from a central rotor. The 4 warp beams, one for each weaving section are situated low down at the outside of the loom. The warps from the beams first pass under wooden floor-stillages and are then deflected upwards to the healds by means of guide rollers which take the place of the usual backrest rollers. From the healds, which operate backward and forward to complement the upward beat-up of the weft, the warp threads pass through a stationary reed and thence to the cloth "fell". As the cloth is woven it travels upwards to the cloth take-up rollers at the top of the loom. From these rollers it passes overhead in a horizontal plane and is subsequently deflected downward by a simple guide roller arrangement to a batching roller just above the warp beam or into a box or wagon situated behind the warp beam.

Picker check for looms. Carl P. Bergstrom (to Crompton & Knowles Loom Works). USP 2 513 909, July 4, 1950.

In picker checking mechanism for a loom having a picker moved by a shuttle when the latter enters a shuttle box on the lay, a flexible strap having one end thereof fixed with respect to the lay, rotary means on the lay operatively connected to the other end of the strap, resilient means acting on the rotary means normally causing the latter to maintain the strap taut across the path of the picker, the latter when moved by the shuttle bending the trap and causing angular movement of the rotary means from the normal position thereof to a given position, pawl and ratchet means operatively interposed between the lay and rotary member effective to hold the latter in the given angular position, and means operating due to motion of the lay causing the pawl and ratchet means to release the rotary means.

Picker stick governor mechanism. Willard C. French (to Draper Corp.). USP 2 506 145, May 2, 1950.

Provides a picker stick governor mechanism constructed and arranged to check the picker stick with different intensities of checking action on its picking and return strokes, to induce return movement of the stick toward picking position following a picking stroke and to a selected extent, and to permit ready adjustment of each of those actions during loom operation.

Reediness in nylon fabrics. W. Ellis Mann. *Rayon & Syn. Tex. 31,* 63-4 (Aug. 1950).

Better dyeing technique, consisting of forcing acid dyes onto the fabric much more slowly, will produce a more nearly uniform dyeing of the fabric with a minimum of the fine-grained, mottled effect due to reed marks. It was observed that fabrics which had gone through the temples on a loom were much less reedy. This was believed to be due to the fact that the fabric which passed through the temples went over 2 or 3 sharp angles, and in so doing spread or moved the warp ends over, thus closing up reed marks and producing more uniform coverage. A loom-width apparatus was devised which consisted of 2 pieces of angle iron placed one above the other in such a manner as to cause the fabric to bend rather sharply through 90° and back again, as soon as possible after the

filling was laid into the fabric. The intensity and incidence of reed marks were greatly reduced.

Some aspects of warp tension. D. C. Snowden. *J. Textile Inst. 41*, P237-49 (May 1950).

Discusses why warp tension is applied during weaving and how tension is adjusted and may be assessed on looms fitted with "controlled" warp let-off motions. Methods of measuring and recording individual warp thread tension with the loom at rest and during the weaving cycle are detailed and measurements and records are discussed. These indicate that the extent of tension varies considerably from thread to thread across the width as does the tension in any one thread as it is delivered from the warp beam to the cloth both during the weaving cycle at a particular epoch of the weaving cycle at regular intervals over a period of weaving. The effect or lack of effect of warp tension on the various properties of woven fabrics is summarized; some aspects of warp tension discussed in previous publications are referred to. Methods of comparing the weaving difficulty of fabrics differing in yarn construction, set or weave interlacings are discussed and the results of experiments applying these methods are stated with regard to: 1) fabrics in which the ratio of ends per inch to picks per inch in 2/2 twill structure is varied; 2) a range of simple twill fabrics of average float 1½, 2, 3, 4, 5 and 6; 3) weft satin structures of average float 2½, 5 and 7½; and 4) 13-end twill structures and satin structures with the single warp floats separated to a varying degree.

Some developments in power looms. I-III. I. H. Thomas. *Fibres 11*, 122-28 (April 1950); 154-56 (May 1950); 231-38 (July 1950).

Parts I and II are devoted to an account of the development and method of operation by mechanisms common to all power looms. Part III describes some of the characteristic motions of modern automatic looms and mention is also made of shuttleless and circular looms.

Thread-cutting and clamping mechanism. Edw. L. Kielczewski & Robt. G. Mallard (to The M. W. Kellogg Co.3. USP 2 515 045, July 11, 1950.

A thread cutting and clamping mechanism for a loom.

Variable beat-up motion for looms. Marcus D. Haney. USP 2 514 603, July 11, 1950.

In a loom having a cam shaft and a crank shaft and a rocker shaft provided with a pair of swords

oscillatably mounted at their lower ends on the rocker shaft and having a lay secured to their upper ends, the crank shaft having a pair of cranks thereon, a pitman rod having one end mounted on each crank and a pivotal connection between the other end of the pitman rod and the swords, the pivotal connection between the other end of the pitman rod and the swords, the pivotal connection comprising a constantly driven rotary shaft mounted in both swords and having an eccentric portion near each end thereof around which one end of the pitman rods are mounted, means driven by the cam shaft for constantly rotating the shaft having eccentric portions thereon to shorten the throw of the lay on alternate picks and to lengthen the stroke of the lay on the other picks during operation of the loom to thus provide open spaces between the filling picks at regular intervals throughout the cloth being woven, the crank shaft having a speed of twice the number of revolutions per minute as the shaft having the eccentrics thereon.

Warp slackening device. Wm. C. Angus & Jos. R. Wylde (to Celanese Corp. of Am.). USP 2 515 389, July 18, 1950.

A loom for weaving comprising a back-rest for the deflection and guiding of the warps on their way from the warp beam to the fell of the fabric, a horizontally movable wedge adapted to maintain the back-rest in a raised position, means for stopping the loom upon failure of the shuttle to enter a shuttle box, and means in association with the stopping means for displacing the wedge horizontally so as to release the back-rest and slacken the warps.

Weaving discussion. Anon. *Textile Industries 114*, 113, 116-17 (Aug. 1950).

The discussion on weaving practices at the semi-annual meeting of the Alabama Textile Operating Executives is reported. Overhead cleaning, loom cleaning, supply costs, quality control, loom drives, and warpwise streaks are discussed.

Web let-off mechanism. Brian Plunkett & Geo. Fama (to Camille Dreyfus). Can. P. 462 585, Jan. 17, 1950.

A let-off motion for positively rotating a beam, comprising means including friction gearing for rotating the beam, the friction gearing comprising a driver member adapted to be constantly rotated and a driving member for frictionally rotating the driver member, and means operated by the first-mentioned means for moving the driv-

ing member to variable radial distances with respect to the driver member so as to cause the speed of rotation of the beam to vary.

Weft stop motion. Victor M. J. Ancet (to Regina S. A.) USP 2 516 042, July 18, 1950.

A weft stop motion for use in a circular loom.

Knitting C 3

Apparatus for knitting float patterns. Salomao J. Haddad (to Chester H. Roth Co., Inc.). USP 2 516 697, July 25, 1950.

In a circular knitting machine, apparatus for producing knitted fabric comprising means for knitting at least 2 different yarns into a single course, means for knitting one of the yarns into the fabric, means for knitting both of the yarns into the fabric simultaneously, means for knitting one of the other yarns into the fabric while the remaining yarns are floated behind the needles, the circular knitting machine having a circular series of needles and also having normal selecting means for the needles for selectively raising certain of the needles and also having means for presenting the yarns to the needles at different elevations. other selecting means for raising needles immediately following action of the normal selecting means for the needles for introducing the first and the second of the yarns to the needles thus raised. a third selecting means for holding the needles in a lowered position as they pass the first of the yarns and for moving them to a raised position as they pass the second of the yarns to thus knit the second of the yarns into the fabric independently of the first of the yarns and a fourth selecting means for raising the needles as they pass the first of the yarns and for lowering the needles as they pass the second of the yarns to thus knit the first of the yarns into the fabric independently of the second of the yarns while the second of the yarns floats thereby.

Automatic yarn tension control mechanism for knitting machines. Vernon T. Stack. USP 2 516 535, July 25, 1950.

Automatic yarn tension control mechanism for a knitting machine having a plurality of independent needles, individually cooperative sinkers spring-urged toward the needles, and a means for tensioning a knitting yarn enroute to the needles. the control mechanism including a detector adapted to be influenced by the sinkers in the event of any tendency of the fabric loops formed

by the needles to tighten or slacken, and interposed means for actuating the tensioning means to compensatively increase or decrease the tension on the yarn for maintenance of a uniform loop size in individual courses of the fabric produced by the machine.

Circular loom for weaving of hose. Christian Christiansen, Lille Foren, V. Aker & Gustav O. K. Rusch. USP 2 514 842, July 11, 1950.

A circular loom for weaving hoses, comprising a weaving ring, means for conveying warp threads thereto, a sector carrier adapted to rotate about the ring, a sector mounted on the carrier for pressing a weft thread inwardly between the warp threads, a seperate press finger having a greater thickness than the sector mounted on the sector carrier and adapted to press the warp threads firmly against the weft thread previously laid in, the pressing surface of the finger being an arcuate section concentric with the weaving ring, and the finger having a plane bottom surface disposed immediately above the top edge of the weaving ring to firmly press the lowermost warp threads against the top edge of the weaving ring.

Device realigns brush rings on Leighton knitter. Anon. *Textile Industries 114*, 135 (Aug. 1950).

A simple device for bringing the brush rings of Leighton knitting machines into circular alignment with the cloth is described and illustrated with a diagrammatic sketch.

Full-fashioned hosiery. Carl Richter. USP 2 514 456, July 11, 1950.

A single unit full fashioned stocking blank having low heel parts each knit of seperate thread and sole parts at opposite sides of the blank each of which is directly knitted to the terminal loops along the adjacent edge of the low heel part at that side, with the wales of the sole parts extended transverse to the wales of the low heel parts, and with a sole wale knitted to each of consecutive terminal loops at least throughout the maior portion of the length of the junction line between each low heel part and sole part.

Guide bar supporting construction for warp knitting machines. Harold C. Noe (to Kidde Mfg. Co., Inc.). USP 2 515 253, July 18, 1950.

In a warp knitting machine, the combination of a pair of end frames, a tube horizontally disposed between the frames, a bracket at each end of the tube for connecting the tube to the frames, the

bracket having a horizontal bearing therein beneath the tube, a rock shaft having its ends disposed in the bearings respectively, a guide bar, and a plurality of depending members for supporting the guide bar connected to the shaft for movement therewith.

Heat-setting of nylon warp knit fabrics. Anon. *Rayon & Syn. Tex. 31*, 62, 64 (Aug. 1950).

This is a reprint of the Official Nylon Technical Service Bulletin. The reasons for and principles of heat-setting are noted and 2 methods are discussed: 1) continuous dry heat tenter setting, and 2) steam autoclave setting. The importance of control tests is also noted.

Knitted fabric. Nathan Levin. USP 2 515 720, July 18, 1950.

Seamless tubular fabric having courses and wales knit of body yarn stitches and ornamented at selected places with successive chain stitches knit of walewise extending wrap yarns which float rearwardly of the fabric between the places, in which the wrap yarns are knitted so that alternate ones of the successive wrap yarn chain stitches are plated on walewise successive body yarn stitches for successive fabric courses and so that the intervening ones of the successive wrap yarn chain stitches extend between the successive fabric courses as extra stitches of wrap yarn only interlooped walewise with the plated stitches.

Knitting machine pattern control mechanism and method of operating the machine. Herbert E. Haehnel (to Textile Machine Works). USP 2 516 514, July 25, 1950.

The combination in a straight knitting machine having patterning means including a plurality of separably operable portions and means for racking the means, of a course—counter means for course—inserting having a normally stationary counting wheel, means for racking the wheel, means whereby a portion of the patterning means initiates operation of the racking means for the wheel, the course—counter also including a plurality of independent counting means associated with the wheel each operable to effect a different number of the courses counted thereby, and means operated by the patterning means adapted to control the selection and initiation of operation of one of the independent counting means.

Machine for treating knitted tubular fabric. Saml. Cohn & Jules G. Walter (to Samcoe Holding Corp.). Can. P. 463 062, Feb. 7, 1950.

In a machine for propelling a fabric strip, a horizontal propeller roll for propelling the strip and a rectifier through which the strip is drawn horizontally, the rectifier comprising a plurality of successive rollers separated enough to prevent pinching of the strip between them and so maintaining free surface contact between the fabric and each roller, the rollers being sufficiently closely spaced so that the strip passes over one of the rollers and under the next and maintains the free surface contact with a substantial area of each of the rollers, a frame rotatably carrying the rollers, and means freely pivoting the frame between the frame around an axis located ahead of the rollers with referenec to the travel of the strip and passing perpendicularly through the median line of the strip, whereby when in operation, as the strip assumes an off center position with respect to the median line the free surface contact of the fabric acts on the sides of the rollers toward which the fabric has shifted to automatically turn that side of the rectifier in the direction of travel of the fabric so that the areas of the rollers in contact with the strip all co-operate in urging the fabric uniformly back toward the center and so uniformly rectify the travel of the strip according to the amount of deflection.

Manufacture of knitted hosiery. Ida L. Miller. Can. P. 463 094, Feb. 7, 1950.

In a flat knitting machine, knitting instrumentalities including a series of spring beard needles movable as a unit, a narrowing machine having narrowing point units, needle knitting cams, narrowing machine vertical motion cams for moving the narrowing point units in accordance with a knitting cycle to close the beards of selected needles, and means operative between knitting cycles to shift the narrowing point units longitudinally of the needle series.

Method and device for the winding of elastic threads. Louis Boucraut (to La Maille Souple). USP 2 514 691, July 11, 1950.

A device is provided for controlling the tension of covered elastic rubber threads which are unwound from a supply spool and fed to a working loom.

Method of and means for closing the toe of circular knit hose. Jas L. Getaz. USP 2 515 506, July 18, 1950.

A method of closing the toe of hose knitted on the needles of a circular knitting machine which com-

prises raising the knitted loops at the toe above the sinkers in the machine by raising the needles with their latches closed, placing adjacent the needles and below the latches thereof a band having on one side spaced projections which register with the needles, depressing the loops over the latches and onto the projections, lowering the needles to shed the loops therefrom, bringing together portions of the band to align pairs of the loops, and sewing through aligned pairs of loops.

Needle reverse plating of knitted fabrics. Jas. L. Getaz. USP 2 515 505, July 18, 1950.

In a circular knitting machine, a knitting cylinder, vertical grooves in the cylinder, independent needles in the grooves, hooks on the upper extremities of the needles, fulcrums for the needles, the needles being mounted in the grooves for rocking about the fulcrums in planes axial to the cylinder, means for rotating the cylinder, means for feeding a plurality of yarns to the hooks in plating relation, means for vertically reciprocating the needles at a given point to draw loops of the yarns to form knitted fabric, means for moving the hooks radially outward before the needles reach such knitting point, and means for rocking selected needles about the fulcrums to move the upper portions and hooks of the selected needles radially inward at such knitting point to change the plating relation of the yarns in the hooks of the selected needles for normal plating to reverse plating.

Nylon warp knitting procedures. I-VI. *Rayon & Syn. Tex. 31,* 66-7 (Jan. 1950); 67-9 (Feb. 1950); 92-4 (May 1950); 63-4 (June 1950); 65, 67 (July 1950); 58-9 (Aug. 1950).

This discussion, which is based on the warp knitting development program conducted by the Nylon Tecnical Seervice, gives detailed information on the whole range of nylon warp knitting procedures.

Patterning mechanism of knitting machines. Geo. Wilders & John E. Lyman (to Wm. Cotton Ltd.). Can. P. 461 736, Dec. 13, 1949.

In a knitting machine, patterning mechanism comprising a set of patterning members individually movable to and from, a set of actuating members associated therewith and selectively movable each between 2 alternative positions each of which is an operative position in which it is positioned ready to move an associated patterning member, power means for effecting relative bodily displacement between the sets and for thereby causing

the actuating members to move the associated patterning members in one direction or the other according to the positions occupied by the actuating members, means for locking the actuating members in the selected positions during the bodily displacement, a patterning device for selecting the actuating members, while locked, for movement between their alternative positions, and spring connections between the device and the actuators for moving the latter, when unlocked, in accordance with the prior selection by the device.

Patterns on the twin-cam flat knitting machine. Wilhelm Busch. *Melliand Textilber. 31,* 325-26 (May 1950); *in German.*

The range of patterns turned out by twin-cam flat knitting machines can be expanded by the use of special auxiliary needle selectors and auxiliary cam parts. Various examples are given to illustrate details of manufacturing possibilities. The author then proceeds to describe the construction and installation of the auxiliary needle selectors and cam parts, all of which can be made in the mill itself. A few sketches serve to show the method of working, the structure and individual parts of the new pattern attachment.

Reciprocating knitting machine. Anon. *Textile Industries 114,* 141, 143 (July 1950).

A modified S & W, B-3 knitting machine, which reciprocates throughout the entire knitting cycle, is described. The machine will close the toe and knit the leg and foot of a sock in one operation. The top is made on a conventional ribber and is put on the sock in a separate operation on a sewing machine.

Reducing operating costs. Anon. *Textile Industries 114,* 135, 137, 139 (July 1950).

Four ways that a full-fashioned hosiery plant reduced operating costs are described. These include a heat recovery system, better inspection facilities, controlling stocking length at knitting, and a pressurized air filter system.

Safety mechanism for preboarding machines. Fred Backhus (to Proctor & Schwartz, Inc.). Can. P. 463 052, Feb. 7, 1950.

Self-supporting hosiery. Henry J. Vogt. USP 2 514 108, July 4, 1950.

A self-supporting hose formed of knitted material and having a top band or garter hem thereon of substantial width, the band or hem having its inner surface coated with soft, vulcanized, rub-

ber-like material whereby to provide for a non-adhesive frictional engagement of the band with the leg surface of the wearer for the retention of the hose thereupon.

Stop motion for knitting machines with full range adjustment. Edw. Vossen (to Stop-Motion Devices Corp.). USP 2 515 479, July 18, 1950.

In a stop motion for knitting machines and the like, a pressure control lever, a pivot pivotally supporting the pressure control lever, a light spring connected with the lever for pivoting the lever in one direction with slight pressure, an adjustment screw rotatively mounted substantially parallel to the lever, a follower mounted on the screw and movable by turning the screw from a position over the pivot of the lever outwards thereof, a spring loaded pressure point element with a control spring mounted on the follower and engaging the pivot for zero pressure and engageable upon points on and along the lever by moving the follower with adjustments of the screw for supplementing and pivoting pressure of the first named spring, and a cam extending along the path of the follower and engaging the control spring in order to vary the tension of the control spring for selected positions of the follower.

Stop motion for warp knitting machines. Donald Quick & Leonard F. Turnbull (to Kingsboro Silk Mills, Inc.). USP 2 514 719, July 11, 1950.

In a warp knitting machine which includes a warp beam, a cloth beam, a tensioning bar between the beams, a needle mechanism between the cloth beam and the tensioning bar, a braking mechanism for arresting movement of the machine, the same being yieldingly impelled to release position, electrically actuated means for effecting braking position of the braking mechanism, and an energizing circuit for the electrical means; the provision of a switch which controls the energizing circuit, the switch being positioned between the warp beam and the tensioning bar and comprising a straight flat bar pivoted at its lower end and having its upper formed with a thread eye from which extends a downwardly directed slot opening on the edge of the bar, the latter being slightly inclined from the vertical and being in open position when a warp thread passes the eye thereof.

Straight-bar knitting machine. Ubaldo Pianta. (to Societa Italiana Ernesto Breda per Costruzioni Meccaniche). USP 2 514 350, July 4, 1950.

In a straight-bar knitting machine, a fixed bar, a pair of slides mounted on the fixed bar for movement along the bar, a pair of freely revoluble sprockets mounted on the bar having fixed axial spacing, a pair of freely revoluble sprockets mounted on the slides, a second pair of sprockets mounted on the slides and having axial relation closer than the first pair of slide supported sprockets the axes of the second pair of sprockets lying in a plane higher than the axes of the first pair of slide mounted sprockets, one of the slides having a shaft journalled therein whereon a sprocket of the second slide supported pair is fixed, a chain extending between and around the first mentioned pair of sprockets to provide runs extending toward each other, the runs extending beneath and up around the first pair of slide supported sprockets and then up to and around the second pair of slide supported sprockets to provide an upper run of the chain extending between the second pair of slide supported sprockets, a reciprocable bar, means releasably connecting the reciprocable bar to a fixed part of the upper run of the chain, and means to effect oscillation of the shaft.

Thread letoff mechanism. Geo. O. Young (to Vanity Fair Mills, Inc.). USP 2 514 824, July 11, 1950.

In a beam thread let-off mechanism wherein the beam is carried by a shaft which continuously rotates and wherein means are provided for letting off the thread at a predetermined linear speed, the movement which includes, as a part of the beam-operating mechanism, an infinitely variable speed unit.

Tool aids installation of lower cylinder spring bands. Ernest Bridges. *Textile Industries 114*, 137 (Aug. 1950).

A description is given of a tool for simplifying the application of lower cylinder spring bands to Komet and links & links knitting machines.

Warp knitting technology. —IV. D. F. Paling. *Brit. Rayon & Silk J. 27*, 54-5, 56 (June,1950).

Discusses the method of indicating the structure of warp knitted fabrics and single bar fabrics.

Warp knitting technology—V. D. F. Paling. *Brit. Rayon & Silk J. 27*, 56, 58-9 (July 1950).

Discusses in detail the knitting of "2-bar" fabrics, i.e., fabrics constructed from 2 sets of warp threads. See also TTD: *7*, 470 and 546.

Welt cutter. Jeremiah L. Bausher & Frederick D. Rickert (to Infants Socks, Inc.). USP 2 515

687, July 18, 1950.

In a circular rib knitting machine having means to produce a continuous tube of individual selvedge welt tops connected by separating yarn courses in which the tube moves under tension from the needles to the take-up, a cutting attachment adapted to be positioned on the machine adjacent the tensioned tube at a point below the needle cylinder, the attachment having a cutting member pressing against the outer surface of the moving tube and adapted to pass inwardly through and engage the openwork stitches preceding each of the selvedge welts preparatory to severing the separating courses between successive tops.

Special fabrics C 4

Artificial leather. Ciba Ltd. Australian P. 137 386, June 8, 1950.

Fleeces of loose animal or vegetable fibers and thin foils of a film-forming monomer (e. g. vinyl chloride) are assembled in layers, heated to the softening temperature of the foil, subjected to a pressing operation, and suitably grained.

Braiding machine. Eugene F. Clark (to Pine Tree Rug & Accessories, Inc.). USP 2 513 451, July 4, 1950.

A novel machine for use in braiding strips of cloth to form braids from which rugs or other articles may be manufactured.

Carpet production. G. B. Angus. *J. Textile Inst. 41*. P271-87 (June 1950).

This discusion of carpet production covers an historical account of carpet making as well as the following: designing; dyeing of the pile yarn; beaming; weft, cop and cheese; figured Wilton; plain Wilton carpet: the spool Axminister carpet; the gripper Axminister carpet squares: chenille Axminister; figured tapestry carpet; finishing; sewing and making-up; and recent developments.

Decorative synthetic fabrics. Anon. *Am. Wool Cotten Reptr. 64*, 27, 81 (July 13, 1950).

The greater the variety and number of fibers and yarns, the greater are the possible effects produced in fabrics. Characteristics of synthetic fibers that make a large variety of fabric effects available are discussed.

Filter material. Raymond R. Stevens (to The Felters Company) USP 2 514 145, July 4, 1950.

A filter body comprising fibers felted together and impregnated with resinous frangible material, the resinous material being fractured on the surfaces of the fibers into small adhering fragments.

Loom. Robt. W. Walliser (to Libertyville Textiles, Inc.). Can. P. 462 689, Jan. 24, 1950.

In a loom equipped with means for advancing ground warp and pile warp threads, means for raising and lowering the ground warp and pile warp threads, and with shuttle means for peroidically weaving a weft thread between the warp threads, a plurality of needles mounted for movement in vertical planes always parallel with vertical planes passing through the warp threads, the needles being also mounted for turning movement, the needles being provided with hooked ends, means for rotating the needles when the pile warp threads are raised to bring the hooks into a position behind a plurality of pile warp threads, and means for advancing the needles as the pile warp threads are lowered to form a loop in each of the pile warp threads.

Method and apparatus for weaving pile fabrics. Robt. J. Jackson (to Bigelow-Sanford Carpet Co., Inc.) USP 2 516 465, July 25, 1950.

The method of weaving on a wire loom a pile fabric floor covering having pile warps interwoven with a woven backing and a pile face comprising portions of the pile warps projecting to different heights above the backing, which comprises inserting a pile wire into a shed, weaving pile warps over the pile wire to form a weft-wise row of pile loops, inserting into a subsequent shed a pile wire having high and low portions, weaving at least some of the last-mentioned pile warps over high and low portions on the second-mentioned pile wire to form a weft-wise row of high and low pile loops corresponding to high and low portions of the second mentioned pile wire, withdrawing the first-mentioned pile wire, and reducing the height of portions of the pile warps of the first mentioned row in pile warps woven over low portions of the second-mentioned pile wire, while maintaining high portions of the pile warps of the first-mentioned row high in pile warps woven over high portions of the second-mentioned pile wire, by withdrawing the second-mentioned pile wire, whereby the first-mentioned row is formed with high and low portions of the pile warps corresponding to high and low portions of the second-mentioned pile wire.

Method of making pile fabrics. Wilhelm F. Fuhrhop & Hans Van Issum. USP 2 516 559, July 25, 1950.

The method of making a pile fabric having a tex-

ture simulating a woven pile fabric which comprises positioning yarn and the yarn threads spaced in accordance with predetermined weftwise and warpwise density, consolidating the spaced yarn in a mass by means of a gel, separating the consolidated mass transversely of the linear direction of the yarn into sections, removing part of the gel by heating and scraping and brushing one face of each section to expose the yarn ends, fixing the exposed yarn ends in a backing, and heating the remainder of the gel to remove it from the yarn.

Method of tire building and material used therein. Henry Dreyfus (to Celanese Corp. of Am.). USP 2 494 649, Jan. 17, 1950.

A tire fabric having a weft of polyethylene yarns and a warp of continuous filament regenerated cellulose yarns having a tenacity of at least 2 grams per denier.

Narrow ware shuttle. Glenn D. Johnson (to Crompton & Knowles Loom Works). USP 2 515 655, July 18, 1950.

In a narrow ware shuttle having a quill compartment, support means on the shuttle at each side of the compartment, a quill having flanges located in the compartment, and a combined quill bearing and guard member having a bearing part supporting the quill for rotation thereon and having also a quill flange guard extending over the quill flanges connected to but spaced from the bearing part and extending across the compartment, the member having the ends thereof formed to be received by the support means of the shuttle.

New synthetic carpets feature blends with wool. Anon. *Am. Wool Cotton Reptr. 64,* 9 (June, 29, 1950).

The increased use of synthetic fibers blended with wool carpets and rugs is briefly discussed. Intensive research has overcome many of the earlier objections found in synthetic fiber carpets.

Proper tensions and lubrication are "musts". Anon. *Textile Industries 114,* 103-4 (Aug. 1950).

Tension is of primary importance in attaining a smoothly braided cord of good quality, and good lubrication is essential in maintaining both quality and a high rate of production. A discussion of points to be remembered in adjusting tension and in lubricating braiding machines is given.

Rayon dotted Swiss. Anon. *Am. Wool Cotton Reptr. 64,* 51, 53, 66 (July 13, 1950).

Semi-transparent rayon fabrics may be given the appearance of a dotted Swiss by applying colored patterns to the woven cloth by means of an adhesive. A thin sheet of copper in the form of an endless belt is preforated minutely in the decoration desired, and the adhesive is applied through the tiny holes to the cloth. The cloth then passes into a container where air circulation causes the pile fiber to stick to the ground base.

Rug and carpet yarns. John M. Morahan. *Rayon & Syn. Tex. 31,* 26-8 (Aug. 1950).

There are no major problems involved in weaving carpets and floor coverings of rayon and synthetic fibers, either in making a 100% synthetic carpet, or in making one of a blend of wool and synthetics. Minor problems may develop, but all of them can be corrected quickly and easily. The use of synthetics and rayon in carpets is noted from the standpoint of manufacturer and consumer.

Rug and method of making same. Benjamin A. Greenberg. (to Charm Tred Mills, Inc.) USP 2 513 559, July 4, 1950.

A pompon-forming fringe comprising a fringe body consisting of yarn looped back and forth transversely of the body to form spaced groups of yarn loops with portions of the yarn diverted from opposite sides of each group to form narrow connecting yarn links joining the loop groups along the longitudinal center line of the fringe, central longitudinal stiching crossing the loop groups and the strands of the narrow yarn links to hold the loop groups and the links in position, inner stiches removably secured only across the yarn loops of the loop groups on opposite sides of the links and spaced therefrom to temporarily hold the yarn loops in place, and outer stiches also removably secured only across the yarn loops of the loop groups on opposite sides of the links and spaced therefrom to the outside of the inner stiches to temporarily hold the loop groups connected in spaced relationship.

Warp printed fabrics. Rudolf Schulze. *Melliand Textilber. 31,* 322-24 (May 1950); *in German.*

Fabrics with warp prints require a troublesome tedious preparation. The design is printed on the warp threads before they are woven into a fabric, for which purpose only the very best material is used. It is difficult to tie in broken threads again in the right shade and they detract from the quality. Special devices must be applied to get rid of the drawbacks that crop up during the preliminary weave, such as the slanting position of the picks

and so on. The printer must handle these preliminary fabrics with great circumspection. The picks are removed after printing, avoiding distortion of the design thereby. Cheap qualities are pasted in the slasher. Imitations can be immediately detected by the harsh outlines.

FABRIC APPLICATION C6

Method of making conveyer belting. Thos. M. Knowland (to Boston Woven Hose & Rubber Co.). USP 2 515 778, July 18, 1950.

A method of making conveyor belting comprising a body of rubberized fabric plies vulcanized together and covered with a synthetic plastic composition bonded thereto, which consists in combining a fabric sheet to one face of a sheeted plastic composition of predetermined thickness, bonding the combined sheets together by the application of pressure and sufficient heat to cause the plastic to soften, permeate and bond to the fabric sheet, coating the exposed face of the fabric sheet with the rubber friction compound combining a plurality of plies of rubberized fabric in face to face contact with each other and with the coated face of the fabric sheet, and subjecting the combined piles and sheets to pressure and to a sufficiently high temperature to vulcanize them into a unit, the temperature of the vulcanizing being lower than the temperature applied and softening the plastic composition.

STANDARD FINISHING D

Application of enzymes in textiles. Julius Pfannmuller & A. Noe. *Am. Dyestuff Reptr. 39,* P-490-96 (July 24, 19590).

The study of enzymes has made real progress only in the last 35 years. The importance of these organic substances containing protein to lower and higher forms of life is noted. Enzymes have been used extensively in the manufacture of beer, cheese and the desizing of textiles, and the use is increasing. The difference between carbohydrate splitting and protein-splitting enzymes is explained, and the best conditions of use for these enzymes in textile manufacture and their assay are discussed.

Applications of plastics to textiles. H. Van Lingen. Vezelinstituut. T. N. O., Pamphlet No. 17; *in Dutch.* 19 p.

This article is mainly intended as a comprehensive review of those numerous present-day applications of plastics in the textile field, in which the plastics act as auxiliaries and are hardly preceptible in most cases. Attention is drawn to the tremendously increased consumption of plastics in the textile finishing departments, where fundamental changes in physical properties are achieved on a large scale. While discussing the representative groups of plastics in general, the reader is made familiar with some typical stages in the processing of textiles and the resulting products.

Automatic clip for tentering machines. Julien Dungler. USP 2 515 399, July 18, 1950.

An automatic clip for the selvedge of cloth in tentering machines comprising a lower jaw for engagement with the selvedge of the cloth, an upper jaw including at least one row of pins and arranged to move to a closed position of the clip and relatively to the lower jaw, the lower jaw being provided with a row of perforations for the registry with the pins in the closed position, at least one guide element extending from the upper jaw toward the lower jaw and adapted to prevent the clip to assume its closing position so long as the guide element engages and rests on the cloth, and a protective member arranged for position intermediate the upper jaw and the lower jaw, the member being provided with respective openings through which the pins and the element pass when the upper jaw closes on the selvedge of the cloth in predetermined position of the latter on the lower jaw.

Auxiliaries in the service of tertiles. I-II. *Fibres 11,* 213-19 (June 1950); 247-49 (July 1950).

Part 1—Discusses the influence of new auxiliaries on procesing anions and cations, non-ionic auxiliaries, etc. Part 2—Discusses auxiliaries to assist dyeing and finishing, lessening of gas fading, and the use of mothproofing treatments and antiseptics.

Bleaching of cotton cloth. C. F. Fitton. *Textile J. Australia 25,* 128, 130, 132, 134, 136, 150 (April. 1950).

See TTD: *7,* 298.

Bleaching of rayon. C. E. Coke. *Textile J. Australia 25,* 138 (Apr. 1950).

See TTD: *7,* 298.

Critical processing stages for wool cloths, etc. G. L. Atkinson. *Textile Mfr. 76,* 344-45 (July 1950).

New knowledge concerning the structure of wool fiber emphasizes more than ever the need for care at each succesive stage in procesing, with correct

conditions an absolute necessity. Processes are divided into critical and non-critical groups. The effect of various processes on the wool fiber is noted.

Cationic softeners; chemical types and recent improvements. A. S. Endler & Fred Gruenwald. *Rayon & Syn. Tex. 31,* 73-5 (Aug. 1950).

Discusses the chemistry of surface active agents, or "surfactants", and explains the difference between the 3 different types—nonionic, anionic and cationic.

Heating means. Horace P. Fry, Jr. (to American Viscose Corp.) USP 2 516 199, July 25, 1950.

A heated roll system for drying yarns or sheets passing therearound in which the rolls are heated internally by means of a liquid which, as it is discharged from the interior of the roll, passes through the bearings for lubrication purposes.

Hydro-extraction in textile processing. Colourist. *Textile Mfr. 76,* 327, 336-37 (July 1950).

Discusses the special features and adaptability of the hydroextractor as a drying auxiliary, and its wide uses in the wet treatment of yarns and fabrics.

Impact of new chemical products on a traditional industry. R. W. Moncrieff. *Textile Mfr. 76,* 346-50 (July 1950).

The impact of new chemical products on the woolen and worsted industry is considered. Specific processes noted are: scouring, oiling, unshrinkable treatments, dyeing, resistance to biological attack, bleaching, textile auxiliaries, and admixture of synthetics to wool.

Influence of lubrication on the felting of wool. R. V. Peryman & J. B. Speakman. *J. Textile Inst. 41,* T241-2 (June 1950).

In a letter to the editor, investigations are reported in which it was found that the part played by lubrication in promoting milling shrinkage is far more important than had been supposed. Best shrinkage results were obtained with oleic acid; low shrinkage in extracted test samples was held due to the restraint placed on fiber movement by the high inter-fiber friction of clean wool. From the results obtained it was considered clear that residual oil and soap left in pieces which are to be acid milled will play a specially important part in controlling the rate of shrinkage during the porcess.

Influence of sodium carboxymethyl cellulose on the suspending power of built soap solutions.

C. H. Bayley & A. S. Weatherburn. *Textile Research J. 20,* 510-13 (July 1950).

The influence of sodium carboxymethyl cellulose (CMC) on the ability of soap solutions to prevent the deposition of carbon black on fabric during the detergent process was studied. It was found that the presence of alkaline builders resulted in a decrease in the suspending power of soap solutions. In general, those builders which caused the greatest depression in the suspending power of the soap solution also showed the greatest improvement in suspending power on the addition of CMC.

Infrared drying. Anon. *Textile Industries 114,* 97 (Aug. 1950).

The installation of 2 infrared drier units in front of an oventype drier at Riegel Textile Corp. is reported to have increased production through the drier with cloth speeds increased 10-15 ypm. The cloth leaves the driers in a more nearly bone dry condition than before installation of the supplementary burners.

Method of bleaching textiles. Leslie P. Seyb, Jas. L. Foster & Howard D. Clayton (to Diamond Alkali Co.). USP 2 515 532, July 18, 1950.

The continuous process of bleaching cotton materials which includes the steps of contacting cotton gray goods with a hypochlorite solution having an available chlorine concentration maintained substantially constantly between 0.3 and 4.5 grams per liter and having a pH maintained substantially constantly between 7.0 and 9.5 and containing a wetting and penetrating agent, steeping the goods in contact with the hypochlorite solution, removing the goods from steeping, and contacting the goods with a caustic solution having a concentration of the order of 0.5% to 3%, steeping the goods in contact with the caustic, contacting the goods with a bleach solution comprising hypochlorite having an available chlorine concentration maintained substantially constantly between 0.3 and 4.5 grams per liter of available chlorine, and having a pH maintained substantially constantly between 7.0 and 9.5, and steeping the goods in contact with the bleach solution, the time of contact with any solution being of the order of up to one minute and the time of steeping at any steeping step being of the order of up to 60 minutes.

Modern textile auxiliaries. A. J. Hall. *Silk & Rayon 24,* 780, 782, 784 (June 1950); Modern textile auxiliaries. A. J. Hall. *Skinner's Silk*

& Rayon Rec. 24, 922, 926, 929 (July 1950).

The listing of textile auxiliaries, giving formulas, properties, patent references, etc., is continued. For previous articles in this series see TTD: *7,* 384, 480, and 558.

Modern trends in the use of detergents. P. B. Law. *Textile J. Australia 25,* 189 (Apr. 1950).

This is a review of some recent developements in detergency and the 5 functions of a detergent are discussed as follows: 1) Wetting, 2) absorption, 3) emulsification, 4) dispersion of solid soil, and 5) prevention of redeposition. The use of CMC in detergents and as a "permanent" finish for cotton and rayon fabrics is discussed. Data are given on the performance of 2 ICI grades of CMC—Cellofas B, which is water soluble, and Cellofas C, which is alkali soulble.

Newer detergents and surface active agents—II. E. I. Birnbaum. *Can. Textile J. 67,* 52-4 (July 7, 1950).

This is a discussion of early developments, the basic types of detergents and new discoveries. Methods of evaluation of their uses in the textile industry are presented. For Part I see TTD: *7,* 649.

Optical blaches. C. H. Bayley. *Textile J. Australia 25,* 28, 30, 32, 34, 36 (Mar. 1950).

The use, function, and methods of application of optical bleaches to various fabrics are described in this paper which is a technical bulletin from the Canadian Research Institute of Launderers and Cleaners. Some of the problems encountered in cleaning various fabrics are noted and the importance of suitable cleaning methods for velvet and velveteen are stressed.

Soap and detergents as affecting textiles. Foster Dee Snell. *Am. Dyestuff Reptr. 39,* 481-84 (July 24, 1950).

Discusses basic principles of detergency, wetting, types of surface-active agents, detergency, effect of soil mixture, effect of fabric, washing ability of soap and synthetic detergents, and textile applications.

Some observations on the finishing of fabrics containing wool and other fibers. C. S. Whewell. *J. Textile Inst. 41,* P219-32 (May 1950).

Gives an account of the conclusions drawn from a large number of finishing trials carried out on blended cloths. Those containing wool mixed with Fibro or Rayolanda were studied in the greatest detail, but some information is available relating to wool unions contaning acetate staple, nylon, and

protein fibers. As there are no published data directly concerning the behavior of cloths made from reclaimed materials containing wool and other nbers, the experience gained in finishing other fabrics containing wool and rayon staple provides some indication of the problems involved and results to be achieved.

Trends in the design of air drying plant. F. H. Slade. *Brit. Rayon & Silk J. 31,* 62-5, 72 (July 1950).

Discusses the principles of drying by means of hot air and describes features of new types of dryers. Topics covered include: batch and continuous drying, the vertical dryer, stenters steam drying, the jet system, hydraulic rail guider, the double-layer machine, and controls.

Web guiding apparatus. Geo. H. Farrington (to Ilford Ltd.) USP 2 513 927, July 4, 1950.

Apparatus for correcting the lateral divergence of a traveling web of material from its true path.

DYEING AND PRINTING E

Dyeing

Acid aftertreatment of metallized resorcinol-azo dyes further coupled on the fiber. Clemens Streck (to Gen. Aniline & Film Corp.). USP 2 515 743, July 18, 1950.

In the process of coloring cellulosic material involving progressively impregnating the material by passage of the material through an aqueous alkaline solution of a coupling component of the class consisting of metal complex compounds of o-carboxy and o-hydroxy aryl-azoresorcinols containing, in complex combination, a metal having an atomic weight between 58 and 64, the coupling component containing no other acidic salt-forming substituents, and developing an azo dye coloration for the impregnated material by applying thereto an aromatic diazonium salt containing no acidic salt-forming substituents, the improvement which comprises treating the material after development of the azo dye coloration, with an acid solution having a pH not greater than 2, in order to convert all of the alkali bound by the dyestuff to salts of the acid; and removing the acid from the material.

Aftertreatment with an aldehyde of wool dyed with chromed azo dyes. Willy Widmer & Arthur Buehler (to Ciba Ltd.). USP 2 516 496, July 25, 1950.

A process for after-treating dyeings produced on wool with acid dyestuffs containing an ortho-amino-ortho'-hydroxy-azo-grouping in the chromed condition, wherein the dyeing is treated with an aldehyde.

Application of automatic control of dyeing plant. L. Walter. *Textile Recorder 68*, 64-6 (July 1950).

A description of some typical applications of automatic controls which can be used in dyeing plants. Such controls as the pneumatically operated recorder-cum-controller, automatic steam control, temperature controls, and process time controls are described and pictured.

Assisting the dyer. Anon. *Dyer 103*, 607-8 (May 19, 1950).

Many faults appearing in worsted and woolen piece goods after dyeing are not due to trouble in the dyehouse, but may be traced to weaving and various preparatory processes. The reduction of listing, streakiness, rigg marking, and other dyehouse troubles by forethought in weaving and preparation is discussed.

Coloration of textile materials. Cyril M. Croft & Walter H. Hindle (to Camille Dreyfus). Can. P. 462 939, Jan. 31, 1950.

Process for locally dyeing textile materials containing yarns of an organic derivative of cellulose, which comprises applying to the materials in a predetermined pattern a printing paste comprising an acid dyestuff, 30 to 60% by weight of a lower aliphatic acid, 6 to 10% by weight of an inorganic salt of thiocyanic acid which is a swelling agent for the organic derivative of cellulose material and 1.5 to 5.0% by weight of a water-soluble thickner, washing the so-treated material directly after the application of the printing paste thereto, and then drying the material.

Coloration of textile materials. Cyril M. Croft & Walter H. Hindle (to Camille Dreyfus). Can. P 462, 940, Jan. 31, 1950.

Process for the coloration of organic derivative of cellulose textile materials, which comprises mechanically impregnating such textile material with a solution of a dyestuff capable of dyeing the organic derivative of cellulose material in an aqueous medium comprising at least 60% by weight of a lower aliphatic alcohol and as an inorganic swelling agent for the organic derivative of cellulose material from 1.0 to 3.0% by weight of a salt of thiocyanic acid and immediately washing the wet textile material.

Distribution of direct dyes between wool and cotton in one-bath union dyeing. Part I—Durazol Red 2B. C. L. Bird, C. M. Nanavati & C. B. Stevens. *J. Soc. Dyers Colorists 66*, 281-88 (May 1950).

Durazol Red 2B shows maximum affinity for cotton at 40°C but is absorbed more rapidly at higher temperatures; on wool, both the rate of absortion and the amount of dye absorbed increase with a raise in temperature. The effects of adding Glauber's salt to the dyebath, and of varying the liquor-goods ratio are very similar for both wool and cotton. Addition of small amounts of acid to the dyebath increases dye absorption by wool, but does not affect cotton. When a small amount of dye is used the color of the wool and cotton fibers are about the same, but ultimately 4 times as much dye is required on the cotton to produce the same shade as on the wool.

Dyeing machine. Frank Roselene. USP 2 513 209, June 27, 1950.

A driving mechanism for use with a dye jig, comprising a support, a cylindrical roller horizontally journalled in the support, a pair of auxiliary rollers flanking and adjacent the cylindrical roller and journalled in bearing members slidable in horizontal direction, the 3 rollers having substantially equal diameter, a plurality of springs arranged for pressing the bearing members toward the central roller, a pair of rollers journalled in vertically slidable bearing members and respectively arranged for normally riding on the auxiliary rollers, the material to be processed being wound on one or both of the vertically slidable rollers, and driving means connected to the cylindrical roller.

Dyeing of nylon. Louis I. Fidell (to Am. Cyanamid Co.). Can. P. 462 806, Jan. 31, 1950.

A method of dyeing linear polyamide superpolymers which comprises dyeing the material and fixing the dye thereon by treatment with tannic acid and with an iron salt.

Dyeing of piece goods made from reclaimed fibers. E. Smith. *J. Textile Inst. 41*, P208-18 (May 1950).

With the many new fibers that have been introduced, the dyer of piece goods made from reclaimed fibers has to consider, in addition to even scouring and carbonizing, whether the pieces, if they require stripping, can be stripped sufficiently to allow him to match the shade required and the effect of fibers other than wool on the dyeing process. The indentification of constituent fibers and their quantitative analysis is discussed. Dyeing

procedures are presented in detail.

Dyeing of polyamides. J. P. Niederhauser. *Textil-Rundschau 4,* 400-05 (Nov. 1949; *in German.*

The constitution of polyamide fibers, nylon and Igamides, is discussed, and the dyeing of these fibers considered theoretically. The dyeing of acid dyes is discussed in some detail with regard to the fixation of dyes by the fiber under different pH conditions and times of dyeing.

Dyeing with acid and direct dyes. E. Elöd & H. G. Frohlich. *Melliand Textilber. 31,* 335-37 (May 1950; *in German.*

The aim of this investigation was to attain further insight into the dyeing processes with acid and direct dyes, using for the purpose Ardil. casein and zein fibers. The results obtained disclose that the difference in the behavior of wool and silk when dyed with drect dyes and the great differences in the fastness to water cannot be based solely on the different histological structure. The conclusion can be drawn from these investigations that the relation of the polar to the non-polar groups in the fibers plays an important part.

Effect of sodium sulfate on the absorption of acid dyes by wool. Barbara Benson & P. Larose. *Can. J. Research* 28, 238-56 (July 1950).

The sorption of the dye Orange II by wool was determined at the boiling point in the presence of various concentrations of sulfuric acid and of sodium sulfate within range usually found in practice. Experiments were also carried out with hydrochloric acid and sodium chloride. It was shown that the results for any one acid and salt concentration can be represented by a simple relation which has the same form for all results. Although this relation has the form of an adsorption isotherm, it is purely empirical at present. The salt effect is explained on the basis of the Donnan equilibrium. The effect of acid strength is to fix the saturation value for the dye.

Equilibria in the dyeing of nylon with acid dyes. W. R. Remington & E. K. Gladding. *J. Am. Chem. Soc. 72,* 2553-559 (June 1950).

The objectives of this investigation was to elucidate the mechanism of the combination of monobasic acid dyes with nylon under normal dyeing conditions and to apply the knowledge obtained to an understanding of the phenomena which occur when nylon is degraded by the application of excessive amounts of dye from acid solutions. The mechanism proposed by Gilbert and Rideal

to explain the absorption of acids by fibrous proteins was demonstrated to account for the absorption of monobasic acid dyes by nylon. The acid tiration equation for nylon derived on the basis of this mechanism differs from the corresponding equation for wool by the inclusion of a term which takes account of the excess of carboxyl over amino end-groups. The experimental data both for single dyes and for mixtures fit the equation in a satisfactory manner. Graphic analysis of the absorption data yield a precise value for the amine-end content of the fiber, which is the practical upper limit for dyeing with acid dyes. No other method is known which permits the determination of this quantity for dyed nylon. By these procedures the nature of the degradation of nylon by the application of excessive amounts of acid dyes from solutions of low pH was elucidated. The absorption of dye in this manner is accompanied by the hydrolytic rupture of principally non-terminal amide groups with the consequent production of additional dyeing sites. These phenomena were observed at pH's within the range of normal dyeing practice.

Light fastness of textiles. Irving Teplitz. *Rayon & Syn. Tex. 31,* 76-7, 78 (Aug. 1950).

A non-technical discussion of light fastness.

Method of dyeing cone wound yarn. Wm. D. MacNeill. USP 2 513 418, July 4, 1950.

The method of dyeing cone wound yarn which comprises the steps of withdrawing the usual supporting cone from the yarn package, inserting into the resultant void a perforated cone of greater length than the package until the outer surface of the cone engages substantially the entire inner surface of the package and the smaller end of the cone projects appreciably beyond the corresponding end thereof, forcing fluid through the yarn and cone perforations to thereby axially e'ongate the yarn package while substantially uniformly permeating its individual convolutions, then subjecting the yarn while supported on the perforated cone to centrifugal force in such manner that the radial component thereof acts on the perforated cone to centrifugal force in such thereby to compact the yarn convolutions toward its larger end until the package is restored to substantially its original length, withdrawing the penetrated cone, re-inserting a supporting cone and finally drying the yarn thereon.

Observations on the anomalous light fastness of some dyed textiles. Philip W. Smith. *Am. Dyestuff Reptr. 39,* 520-23 (Aug. 7, 1950).

Reprinted from *J. Soc. Dyers Colourists.* See TTD: *7,* 335.

Some observations on the tendering of nylon by exposure to light. O. Newsome. *J. Soc. Dyers Colourists 66,* 277-80 (May 1950).

A series of experiments to ascertain the effect of certain black dyes on the tendering of nylon when exposed to light are described. It was found that none of the dyes increased the tendering effect, while several like logwood and Multamine, Black B (ICI) were particularly effective in decreasing it. Additional experiments on the action of chromium compounds suggested that the protective action of logwood is due primarily to the presence of chromium.

Some problems of rayon dyeing. I-IV. A. G. Tyler. *Brit. Rayon & Silk J. 26,* 53-4 (Feb. 1950); 58-9 (Mar. 1950); 58-9 (Apr. 1950); 58-9 (May 1950).

Part 1—Changes in making man-made fibers over the years have complicated the dyeing techniques. The 3 groups of fibers are: 1) cellulose rayons, 2) protein and protein like fibers, 3) cellulose acetate. The first group is discussed in this article. Factors affecting the depth of dyeing are: 1) actual filament denier, 2) presence of delustering agents, 3) whether continuous or spun staple yarn and 4) whether stretch-spun or not. Each of these are explained and discussed in detail. Part 2—Describes 3 tests which are used for classifying the behavior of dyestuffs on rayons of varying affinity. Part 3—Rayon can be dyed as it is spun. This is practical for a limited number of standard shades, but not for the wide variety now in use. Dyeing in cake form has replaced dyeing hanks of yarn. Dyeing in cakes sometimes results in light and dark streaks due to openings in the cake. Drying must be done slowly. Methods for dyeing viscose cakes with direct dyes and azoic dyes are discussed. Part 4—Dyeing with vat colors is discussed.

Sorption of acid dyes on nylon. Frank C. McGrew & Allan K. Schneider. *J. Am. Chem. Soc. 72,* 2547-552 (June 1950).

The sorption of acid dyes on nylon was studied, using the techniques and principles developed for the study of wool by English workers. Evidence is presented to confirm the mechanism of attachment of acid dyes to nylon at moderate pH levels as consisting of a salt-type linkage between the basis amine ends of the polymer chain and the sulfonic acid groups of the dye. The quantitative measurement of affinity of dye for the fiber, previously applied to wool, was successfully extended to nylon. The procedure was modified to permit its application to dyes with high affinity. The affinities for nylon were measured for 10 representative acid dyes. The affinity was shown to provide a quantitative basic for the explanation of competitive effects in the sorption of acid dyes by nylon from mixed solutions.

Testing for Indigosol dyeings and prints. J. Lanczer. *Melliand Textilberichte 31,* 360-61 (May 1950); *in German.*

Indigoid and anthraquinoid vat dyes can be recognized as such in dyeings and prints by the transfer test to mercerized cotton from a vat that has not been set (10% NaOH 38° Be and hydrosulphite conc.) at 65°C, which does not hold good in the case of Indigosol dyeings. That transfer test premises that all those mordant and sulphur dyes that are able to form a vat have been excluded by systematic trials, because otherwise it is impossible to avoid confusion with vat dyes. The author has now found that the transfer test can also be successful with Indigosol dyeings and prints by applying the following method: 1-2 sq. cm of the test sample in which a small piece of mercerized cotton has been wrapped is boiled for a short time in a test tube with 1 cm^3 of the following solution: 4 cm^3 NaOH 38° Be, 4 grams hydrosulphite conc. and 4 cm^3 pyridine dissolved in 100 cm^3 water. Oxidation is then effected either by exposure to the air or by means of perborate. If both methods give results, then these are indigoid or anthraquinoid vat dyes, but if only the latter test gives a good transfer, these are Indigosol prints or dyeings.

Printing

Action of urea in intensifying prints. R. Haller. *Melliand Textilber. 31,* 349-51 (May 1950); *in German.*

The author studies the causes of the action of urea in intensifying prints with substantive dyes, as well as with acid dyes on vegetable fibers. The main point dealt with was the dispersoid chemical behavior of the dyestuff solutions treated with urea. Unfortunately no positive criteria could be found in calico printing and the matter still remains as much of a problem as ever.

Cause and prevention of printing faults. Anon. *Textile Recorder 68,* 72-4 (July 1950).

Particular reference is made to the manufacture

of handkerchiefs, scarves, tablecloths and dress goods. Subjects discussed are: inspection of print goods, with allowances, faults due to over-mercerization, importance of roller finish, storage of engraving rollers, effect of damp selvedges, soiling during steaming, faults in discharge printing, faults in screen-printed goods and difficulties with rayon.

Coating of screens. F. W. Mackenzie. *Dyer 103,* 803-5 (June 30, 1950).

A practical discussion of the various methods of coating screens is given. Methods discussed are brush, roller, or doctor blade, weir and an adaptation of the whirler method used in photo engraving.

Comparison of gum tragacanth with other thickening agents. Karl Walter. *Melliand Textilberichte 31,* 351 (May 1950) ; *in German.*

This article compares the properties of gum tragacanth as thickening agent with modern products, both by itself as well as in combination with starch and so forth, whereby the trials carried out showed that modern thickening agents are superior to tragacanth. Attention is drawn especially to the uniformity of the new thickenings compared with tragacanth, as well as to their absolute purity, both of which characteristics insure the utmost dependability of working operations.

Doctor blade adjustment. Anon. *Dyer 103,* 743-5 (June 16, 1950).

Practical suggestions are given for the sharpening, cleaning and setting of the cleaning blade, the lint blade, and the sample doctor, or box doctor.

"Fall-ons" and half-tones in textile printing. J. H. Downey. *Textile Age 14,* 36-43 (July 1950).

Half-tone effects in printing are dark and light tones of the same color produced in one printing operation, and "fall-on" effects are one color printed on top of another to give a different color effect. A technical discussion of certain aspects of the production of these effects by the engraved copper roller and silk screen printing methods is presented.

Fine line reproduction. F. W. Mackenzie. *Dyer 103,* 675-7 (June 2, 1950).

Describes the photographic method of preparing screens and discusses screen coatings and coating methods. The hardening action, the addition of glycerine and the fish glue formula are noted. The use of polyvinyl alcohol as a coating material

is considered.

New vinyl film printing imparts cloth-like appearance. Chester M. Robbins. *Am. Wool Cotton Reptr. 64,* 63-5 (July 13, 1950).

Various methods of printing vinyl film, including gravure, rotogravure, and aniline printing are described.

Printing cellulose acetate fabrics with oxidation dye pastes comprising an alcohol and thickened with methyl cellulose. Henry C. Olpin & Tom Jackson (to Celanese Corp. of Am.). USP 2 514 411, July 11, 1950.

Process for the coloration of cellulose acetate textile material, which comprises impregnating the material with a solution of a chlorate and an aromatic amine in an aqueous lower aliphatic alcohol of at least 50% strength by weight thickened with a water-soluble methyl cellulose having a methoxy content of 22-30% and a viscosity of at least 150 centipoises as measured in a 2% aqueous solution at 25°C, the alcohol being of the series $C^nH^{2n}+^1OH$ where ^{n} is from 1 to 3 and thereafter steaming the material to oxidize the amine to an aniline black type coloration on the material.

Printing of cellulose acetate using methyl cellulose as a thickener for strongly alcoholic dye solutions. Henry C. Olpin & Philip Broughton Law (to Celanese Corp.). USP 2 514 410, July 11, 1950.

A textile coloring composition comprising a solution of a chrome dye and chromium acetate in aqueous ethyl alcohol of 55-75% strength by weight thickened with a 1 to 2% of a water soluble methyl cellulose having a methoxy content of 22-30% and a viscosity of at least 150 centipoises as measured in a 2% aqueous solution at 25°C.

Screen printing. Richard Kunzl. *Melliand Textilberichte 31,* 356-7 (May 1950) *in German*

The one-man system of screen printing calls for a design of the doctor that enables the printer to maneuver without additional trouble on the opposite side of the screen in such a way that the doctor pushes the color before it when on the return journey to him. That can be effected by means of the double doctor and the tilting doctor, but when heavy doctors are being used for heavier fabrics, the tilting doctor design is impractical and lifting devices are then used. These consist

of a movable lifting arm on the doctor and cam plates on the frame, or lifting pins on the doctor and movable cams on the frame. When the lifting arms or lifting pins run up on the cams, the doctor is lifted over the color. On the return journey corresponding links serve to put the lifting arms or the cams out of action.

Screen printing on glass. John H. Thomas. *Am. Wool Cootton Reptr. 64,* 33, 107 (July 13, 1950).

The characteristics and uses of Fiberglas are reviewed. Fiberglas fabrics, which are to be processed into printed materials first undergo the Coronizing treatment and are then coated with a lubricant. The Hycar-Quilon method of screen printing, which is described, is used to print these fabrics.

SPECIAL FINISHING F

Aminoplasts containing silicon. Henry A. Walter (to Monsanto Chemical Co.). USP 2 514 268, July 4, 1950.

A reaction product of an aldehyde and a silicon oxyamide is useful for shrink-proofing, crease-proofing and fireproofing textiles and to increase the water strength of paper.

Antifelting of wool. Frederick R. Haigh, Hugo Ehrhard & Ernest C. Koerner (to Botany Worsted Mills). USP 2 516 055, July 18, 1950.

A process for the anti-felting of wool and wool products which comprise as steps first treating the material by a partial halogenation and thereafter subjecting the partially halogenated material to a resin treatment, the successive treatments being each incapable by itself to produce effective non-felting properties.

Art of producing moire pattern effects in fabrics. August Holterhoff. USP 2 513 646 July 4, 1950.

The method of producing moiré pattern effects on fabrics comprising moistening the fabrics within confined pattern areas while applying tension to the same, drying the fabrics while maintaining the tension, doubling the thus treated fabrics and applying heat and pressure to produce the finished moiré effect.

Coating substances and method for producing same. Jacob van den Berge (to Shell Development Co.). Can. P. 461 927, Dec. 20, 1949.

In a method of coating fabrics with asphaltic bituminous materials of different penetration indices, the steps of first impregnating the fabric with an asphaltic bitumen having a relatively lower penetration index and having an asphaltene content of at least 12%, the asphaltenes of the asphaltic bitumen having a carbon-to-hydrogen mole ratio of at least about 0.95, and then applying to the surfaces of the thus treated fabric a layer of an asphaltic bitumen having a penetration index higher than that of the first bitumen.

Dimensional stability and shrink-proofing of cotton materials. Edw. C. Pfeffer, Jr. *ASTM Bull.* No. 167, 86-7 (July 1950).

Discusses "what happens when a cotton fabric shrinks?" Tests are reported the results of which indicate that cotton fabrics shrink almost entirely due to crimp change and due to yarn shrinkage. In the finishing processes, therefore, the tensions exerted on the fabrics cause 1) distortion of fabric geometry and 2) unnatural crimp relationships. These tensions, however, do not produce significant permanent stretching of yarns.

Effect of nondurable aluminum salt-wax emulsion on the wear resistance of textiles. Seaman J. Tanenhaus & Mary E. Darby. U. S. Office of the Quartermaster General. Military Planning Division. Research & Development Branch. PB 100 362. n. d. 22 p. graphs, tables. *Bibl. of Technical Reports 14,* 48 (July 14, 1950). Mimeo: $.75.

See TTD: *7,* 581.

Method of treating wool-containing textile materials. Chester A. Amick (to Am. Cyanamid Co.). USP 2 515 107, July 11, 1950.

The method of rendering a woolen textile material resistant to shrinking and to attack by carpet beetle larvae which comprises (1) impregnating the textile material with an impregnating composition consisting of an aqueous solution of methylated methylol melamine containing a small amount of both diammonium hydrogen phosphate and hexamethylene tetramine, the phosphate being present in the solution in a major proportion with respect to the hexamethylene tetramine, and the solution having dispersed throughout an acetone solution of a 1,1-bis (chlorinated phenyl -2,2- dichloroethylene, the chlorinated phenyl groups of which contain an average of 2 chlorine atoms for each phenyl nucleus, and the dichloroethylene being present in the impregnating composition in a weight ratio of about 1 part thereof to about 10 parts of the methylated methylol melamine on a

net dry basis, (2) squeezing the impregnated textile material so that it retains about 100%, by weight of the dry textile, of the impregnating composition, (3) drying the squeezed textile material and finally (4) heating the dried textile material at a temperature of approximately 285°F to convert the methylated methyol melamine, while intimately associated with the dichloroethylene, to a substantially water-insolube condition.

Mothproofing. R. W. Moncrieff. London, Leonard Hill Ltd., 1950 234p. Price: 17s 9d.

The comprehensive nature of this work, is indicated by the table of contents. The chapter headings are as follows: Clothes moths and house moths, Carpet beetles, The nature of the damage caused by wool pests, Mothproofing with dyestuffs, Mothproofing with Mitin FF, Mothproofing with fluorides, Mothproofing with colourless dyestuffs of the triphenylmethane series, Mothproofing with Mitin FF, Mothproofing with pentachlorphenol, Mothproofing with DDT, Mothproofing with phosphonium compounds, Mothproofing with formaldehyde. The nutritional requirements of the clothes moth larvae, Mothproofing by modification of the molecular structure of wool, Mothproofing during drycleaning, Infestation precautions and remedies, Breeding and rearing moths, Testing the mothproof. Detailed discussions are given of the numerous mothproofing methods, including data on the structure of the chemicals involved. In addition to the listing of 95 references, there is a name index and an excellent subject index. The numerous photographs of insects and test specimens are also excellent.

New flameproofing agents more durable and efficient. J. Mitchell Fain. *Chem. Industries 66*, 360-61, 468-72 (Mar. 1950).

Reviews recent research on flameproofing and new flameproofing agents. Types of fire-retarding finishes, how they work, and textile requirements that must be met are noted.

New treatment of woolen fabrics developed by QMC combats moths. Release of Department of the Army, Office of the Quartermaster General, Washington 25, D. C.

As a result of tests extending over the past 3 years, the Quartermaster Corps has adopted a method of treating woolen fabrics with a solution of DDT at the time the materials are sponged. These tests show that woolen goods treated with a solution of ½ of 1% DDT are protected from insect damage throughout an indefinite period of

storage, and that the materials continue to be insect-proof after they have been made into uniforms until the uniforms are dry cleaned. The protection may then be extended by again treating the uniforms during subsequent dry cleaning or laundering. At the end of the test period, Quartermaster and U. S. Department of Agriculture observers found that woolen fabrics treated with 5% solution of DDT were completely protected. Not even the nap had been consumed. The untreated samples suffered various degrees of damage from light to extreme. Insects used in the test were larvae of the black carpet and furniture beetle and the clothes moths.

Oxidation of alkoxy hydrocarbon silanes. John B. Rust & Chas. A. MacKenzie (½ to Montclair Research Corp. & ½ to Ellis-Foster Co.). USP 2 506 616, May 9, 1950.

Oxidation polymers of alkoxy hydrocarbon silanes, such as mono-n-butyl triethoxy silane, are suggested as textile finishing compositions to render them hydrophobic, and to produce waterproofing, creaseproofing, wrinkleproofing, and to render rayons slip-proof.

Oxidative polymerization of silicic acid esters. John B. Rust & Chas. A. MacKenzie (½ to Montclair Research Corp. & ½ to Ellis-Foster Co.). USP 2 507 422, May 9, 1950.

Polymers obtained by the oxidative polymerization of silicic acid ester, such as ethyl silicate, are suggested to render textiles hydrophobic, for waterproofing, creaseproofing, wrinkleproofing purposes and to render rayon slip-proof.

Shrink resist finishes. E. R. Trotman. *Textile Recorder 68*, 70-1 (July 1950).

Processes to render wool unshrinkable are developing on several distinct lines. In this survey, the cause of wool felting and the principles on which shrink resist processes are based are discussed.

Shrinkage control of viscose rayon fabrics. J. A. Woodruff. *ASTM Bull.* No. 167, 83-5 (July 1950).

Considerations involved in shrinkage control of viscose rayon fabrics are: 1) Shrinking control attainable, 2) crease resistance obtained, 3) cost of treatment, 4) permanence of hand, 5) possible variations of hand, 6) odor, 7) chlorine retention, 8) effect on dye shade or other properties, and 9) fabric weighting. Each of these considerations is discussed.

Shrinkage in wool fabrics—its causes and treatment. Anon. *Rayon & Syn. Tex. 31*, 51-2

(Aug. 1950; *Can. Textile J. 67*, 54, 56 (July 21, 1950).

This reprint of an article from *Woolfacts* discusses the causes of shrinkage—1) relaxation shrinkage, 2) felting shrinkage—and shrinkage treatments. Treatments to combat relaxation shrinkage noted are: 1) steam shrinkage, and 2) London shrinkage. Treatments to prevent felting shrinkage noted are: 1) wet chlorination, 2) resin treatments, and 3) latex treatments.

Smooth, mobile polyvinyl chloride coating compositions. Noel Armstrong (to E. I. du Pont de Nemours & Co.). USP 2 507 688, May 16, 1950.

A plasticized composition comprising polyvinyl chloride in a solvent for coating textiles.

Study of some factors affecting the shrink-resistance of wool, submitted by the Harris Research Laboratories, Washington, D. C. U. S. Office of the Quartermaster General. Military Planning Division. Research and Development Branch. PB 110 059, May 1949. 38 p. photos, graphs, tables. *Bibl. of Technical Reports 14*, 49 (July 14, 1950). Mimeo: $1.00.

An instrument has been devised which yields reproducible values for the surface friction of wool fibers in either direction in air, water, or any desired medium. With this device, measurements have been made which show the distribution of frictional properties among fibers withdrawn from the same fabric, and which demonstrate the differences in frictional properties found among fibers of various types of wool. The results of a study of the complex reaction between wool and active chlorine have shown that: (1) with increasing times of chlorination, fiber modification increases and strength decreases; (2) with short times of chlorination, fiber modification is relatively unaffected by the pH of the solution for equivalent degrees of shrink-resistance; (3) felt-resistance is remarkably sensitive to chlorine concentration in acid chlorination, but chlorination under the latter conditions is less pH-sensitive than alkaline chlorination; and (4) for a given time and pH of chlorination, the shrink-resistance of fabric is approximately linearly related to the chlorine concentration.

Textile-finishing composition, method of treating wool-containing textile material therewith and product thereof. Roy H. Kienle and Chester A. Amick. (to Amer. Cyanamid Co.) USP 2 514 132, July 4, 1950.

A wool-containing textile material is rendered resistant to shrinkage and to attack by carpet beetle larvae by impregnation with a partly soluble alkylated methylol melamine mixed with a melamine fluosilicate or fluoborate which is then cured to the water-insoluble state.

Wool shrinkproofing baths containing butadiene copolymers and their utilization. John B. Rust (½ to Montclair Research Corp. & ½ to Ellis-Foster Co.). USP 2 514 517, July 11, 1950.

A bath suitable for shrinkproofing wool while retaining essentially normal hand which comprises an aqueous substantially stable emulsion containing a synthetic copolymer of 100% polymerization of butadiene-1,3 and from 10 to 40% by weight on that copolymer of a vinyl ester selected from the group consisting of halides and fatty acids, the latter having not more than 6 C atoms, in amount to give 1 to 25% by weight of copolymer deposition on the wool, a non-cationic emulsifying agent, and at least 25% by weight on the copolymer of a water-soluble neutral salt of an alkali metal as conditioning electrolyte, the pH of the bath being below 7.

Treating viscose staple for shrinkage control. J. A. Woodruff, *Am. Wool Cotton Reptr. 64*, 55, 57 (July 13, 1950).

The 5 classes of treatments which are the most used in obtaining shrinkage control of viscose rayon fabrics are: reactants, bonding, chemical modifier, thermosetting resin, and compressive shrinkage. The use of a combination of these treatments to obtain better over-all results is discussed.

TESTING AND MEASUREMENT G

Analysis of commercial hydrosulfites and related compounds by polarographic methods. W. Furness. *J. Soc. Dyers Colourists 66*, 270-77 (May 1950).

The application of polarography to the analysis of hydro sulfite is discussed. The method outlined for the determination of hydrosulfite is shown to be more specific than other methods, with the probable relative error being about 1%. Polarographic procedures for the determination of thiosulfate, sulfide, and trithionate in the presence of hydro sulfite are also described, and the respective merits of chemical and polarographic methods compared.

Titanium compounds as fire-retardant agents for fabrics. I. M. Panik, W. F. Sullivan & A. E. Jacobsen. *Am. Dyestuff Reptr. 39*, 509-16

(Aug. 7, 1950).

This survey of the use of titanium compounds as fire-retardant agents for fabrics covers 21 references to U. S. and foreign journal and patent literature. The cases cited are those in which a relatively low add-on yields good general fire-retardant properties.

Transparentizing regenerated cellulose silk. Ernst Weiss (to Heberlein Patent Corp.). USP 2 516 083, July 18, 1950.

A process which comprises treating regenerated cellulose with an aqueous solution selected from the group consisting of sulfuric acid of about 42° to about 48°Bé., phosphoric acid of about 50° to about 55° Bé., hydrochloric acid of the order of 20° Bé., zinc chloride of the order of 50° Bé., and calcium thiocyanate of the order of 25° Bé for a period of time of the order of 10 sec. at a temperature in a range of about room temperature and below, whereby an acid parchmentized regenerated cellulose textile material results which lacks clarity and is non-uniform in appearance, and treating such material substantially free from acid at room temperature with an aqueous caustic alkali solution selected from the group consisting of potassium hydroxide of the order of 30°Bé. and sodium hydroxide at 6° to less than 12°Bé. for a period of the order of 10 sec. to produce a clear uniform transparent fabric.

Apparatus for gauging textiles, particularly yarns and sliver. Oskar Grob & Hans Locher. (to Zellweger A.G. Apparate-und Maschinenfabriken Uster). USP 2 516 768, July 25, 1950.

In a high frequency oscillator measuring device for determining the substance cross section variations of textile materials, especially of yarn, roving and sliver, a measuring condenser, comprising 2 comb-shaped electrodes having teeth, the teeth of one electrode being offset and the electrodes being assembled so that the offset teeth of one electrode lie between the teeth of the other electrode, and so that between each tooth of one electrode and the adjacent tooth of the other electrode a measuring field is produced through which the material undergoing test is to be drawn, the width of the thus formed measuring fields being so chosen that the substance of the material undergoing test fills 2 to 20% of the measuring field utilized.

Centrifugal drier for use in conditioning pads, swatches, or other fabric samples without heat. Rene M. Petit. USP 2 515 056, July 11, 1950.

A pad, swatch or other fabric sample centrifugal dryer comprising a casing forming a drying chamber, having door means, air inlet means, air outlet means and filter material, covering the air inlet means, an electric motor having a drive shaft extending within the drying chamber, a settable time interval switch, a line connecting the motor to a source of electricity through the time interval switch, a flywheel mounted on the motor shaft within the drying chamber and sample holding means comprising diametrically balanced arms projecting radially outwordly from the flywheel bent forwardly at least 45° intermediate the ends thereof and sample holders each comprising a perforate base slightly rearwardly twistedly mounted on the end of each arm, having a spring urged clamp adapted to clamp sample against the forward inner edge of the holder.

Anomalous results of mothproofing tests. K. P. Lamb. *Nature 166,* 37 (July 1, 1950).

In a communication to the editor, experiments are reported in which it was found that when a mothproofing agent was applied in the dye bath, under certain conditions, an apparent inhibition of mothproofing efficiency was progressively removed by washing as there was a steady increase in mothproofing efficiency after each washing. Thus, though chemical analysis might show a concentration of agent which was theoretically adequate for protection, in practice the efficiency of the agent might be too low to prevent damage.

Colorimetric determination of sodium hypochlorite. Guy R. Wallin. *Textile Research J. 20,* 514-16 (July 1950).

Method depends upon the amount of blue color developed when phenol, ammonium hydroxide, and sodium hypochlorite react. This method is offered as a possible alternative to the standard sodium thiosulfite titration procedure.

Effect of the rate of extension on the strength and extension of cotton yarns. R. Meredith. *J. Textile Inst. 41,* 199-24 (June 1950).

Data in the literature indicate that the decrease in strength of yarns or fabrics with increase in time to break is a property of the fibers themselves. The influence of yarn structure and variety of cotton on the change with time of strength, breaking extension and compliance, was investigated. It was found that: 1) the strength decreases linearly with increase in log except at

short times where it may become less sensitive to time changes; 2) the low-twist singles yarn shows a large percentage change in strength but the same absolute change as other yarns tested; 3) over the range of times to break from 10 secs. to 3 hrs., the strength of cotton yarn decreases by 9% for a 10-fold increase in time to break; 4) apart from the low-twist singles yarn, all yarns show a maximum breaking extension for some time to break between 1 and 10 secs., and approximately equal values at 1/100 sec. and 1 hr.; 5) the compliance, i. e. extension per unit load, decreases linearly with increase in the logarithm of the rate of extension except for the singles low-twist yarn.

Estimation of the residual wool fat on tops combed in oil. E. W. Clark & W. L. Thomas. *J. Textile Inst. 41*, T236-40 (June 1950).

The method for the estimation of residual wool fat on tops combed in B. M. (Blended Mineral) Oil, advanced by the authors in *J. Textile Inst.*, (Aug. 1948), (see TTD: *5*, 749) has been applied to other types of oil since the discontinuance of the use of B. M. Oil. It was found that the method (based on measurement of refractive index) holds good in the case of 3 of the other oils. Data are given on tests of the 3 oils.

Fastness to sea-water of dyeings and prints. Schweizerischer Verband für die Materialprüfungen der Technik, Kommission 25, Richtlinienblatt A 2512. *Textil-Rundschau 4*, 297 (Aug. 1949); *in German.*

A standard method for evaluating fastness to sea-water consists of treatment under specified conditions in water containing 30 g of sodium chloride per liter.

Measurements of fiber length. H. Sommer & H. J. Henning. *Melliand Textilber. 31*, 310-12 (May 1950); *in German.*

The author makes a suggestion in connection with the necessary rearrangement of concepts and designation in the measurement of fiber length. Proceeding from the "unemphasized" fiber length, the varying "emphasis" of frequencies, staple diagram and average fiber length which arises in consequence of the method of sampling and the measuring process are shown up and corresponding designations and formula signs are proposed. The conversion of the results for purpooses of comparison by application and by doing away with the emphasis laid on length is given.

Methods of evaluating detergents. Cornelia T. Snell. *Am. Dyestuff Reptr.* 485-87 (July 24, 1950); *Brit. Rayon & Silk J. 31*, 60-1 (July 1950).

Discusses detergent evaluation methods as follows: surface tension measurements, interfacial tension measurements, measurement of dispersing power, measurement of wetting power, and washing tests.

Mothproofing tests. O. Wälchli. *Textil-Rundschau 4*, 247-53 (July 1949); *in German.*

Four tests each using 25 mothgrubs are used. Grubs of 3-5 mm in length were used as at this stage they are at their hungriest. The surface of the test samples is coated with bait except for rings of unbaited material left completely around the edge of the sample. As the grubs feed more easily on the edges than on the surface of the cloth, the bait should not be put on the edges. The amount of damage, judged by frass produced, varies greatly with the type of fabric; hard smooth fabrics are less readily attacked than those of soft, raised fabrics. With tightly spun yarns or hard cloths there is less bitten-off fiber in the frass. The control fabric should be as similar as possible to the sample under test. Samples are passed as mothproof when the frass is not more than 12% of that of the control.

New method for studying the breaking strength of wool fibers. F. Maillard, O. Roehrich and M. J. Hitter. *Bull. de l' Institut Textile, No. 19*, 9-20 (June 1950); *in French.*

The authors used the Chevenard micro-machine, following this up with a method enabling the breaking length, and the breaking elongation of wool to be calculated by tests in bulk and not fiber by fiber. It is believed that approximately 20 tests should be sufficient to obtain significant figures for such characteristics.

New synthetic fibers create analysis problems. Anon. *Am. Wool Cotton Reptr. 64*, 43-4 (July 20, 1950).

Problems in analyzing synthetic fiber fabrics due to the growing use of new fibers, yarns and processing steps are discussed.

Principles of performance testing of laundry detergents. Thos. H. Vaughn & H. R. Suter. *J. Am. Oil Chemists' Soc. 27*, 249-57 (July 1950).

A soil removal test has been devised in which the soil, which consists essentially of carbon black, is applied to the test fabric from aqueous medium. The quantity of soil removed is measured directly by means of light transmission measurements on

the soiled detergent solution. The whiteness retention property is determined by agitating unsoiled swatches in the detergent solution containing carbon black dispersion and measuring the reflectance change of the swatches. The results of both tests are expressed in relative terms, reference detergents being used as controls.

Rapid estimation of wool fiber fineness. Elroy M. Pohle. *Textile Industries 114,* 98-102 (Aug. 1950).

A rapid method for estimating mean diameter and uniformity in wool or wool top by using cross sections of fibers photographed onto a 35-mm. film strip is described. The use of this method in conjunction with the Micronaire instrument to estimate uniformity of fineness is also described.

Rapid method for determining mildew susceptibility of materials and disinfecting activity of compounds. R. G. H. Siu & G. R. Mandels. *Textile Research J. 20,* 516-18 (July 1950).

The method proposed is based upon a measurement of the growth of the microorganism by means of a manometric determination of the total oxygen absorbed during growth. The cumulative respiration of the mass or organism which has grown in the presence of the inhibitor is measured. Basic assumptions are 1) the amount of growth in a given period is a function of the effect of the inhibitor; 2) the cumulative respiration of the organism during growth is determined to a much greater degree by the quantity of organism than by the effect of the substance on respiration. Apparatus and procedure are described.

Spinning tests on micro samples of cotton. V. V. Gupte, Harirao Navkal & D. L. Sen. *Indian Cotton Growing Rev. 4,* 52-9, (Jan. 1950).

Describes method developed by the Technological Laboratory, Indian Central Cotton Committee, for running spinning tests on small samples of cotton (60 grams). The method comprises opening the cotton by bringing it into contact with a vibrating string of catgut, making a lap by hand, feeding the lap to a standard card especially adjusted for the purpose, and thence through the drawing frame and spinning frame. Details of each step are given and data obtained by the new method and the standard method using 10 lbs. of cotton are compared in a table.

Staining test of fiber blends. Hans Draxl. *Textil-Rundschau 4,* 347-51 (Oct. 1949); *in German.*

Describes a simple dyeing procedure for distinguishing between different fibers in mixed yarns or fabrics. The dyes used are Brilliant Blue FFR extra for identifying silk, Eosine extra for wool and wool-like artificial fibers, Chloramine Yellow for cotton and viscose rayon. Chloramine Orange G for cuprammonium rayon and Lanusa, and Cellitone Pink for acetate rayon. Details of the method are given, and the dyeings obtained with the various fibers are listed.

Strength test evaluation simplified. Tyler G. Hicks. *Textile Industries 114,* 94-5 (July, 1950).

In making tests of yarn strength, many specimens must be tested before the mean strength can be obtained. A time saving method for recording and evaluating results to obtain the "true" mean and coefficient of variation is described.

Synthetic resins; a simple laboratory method for their application to textiles. U. V. Solanki. *Indian Textile J. 60,* 496-98 (Mar. 1950).

Laboratory methods for applying thermoplastic and thermosetting resins are described. A number of tests such as stiffness, wrinkle recovery, tensile strength, etc. which are used to evaluate the treated fabrics are also described.

"Uster" staple-diagram apparatus. E. Honegger. *Textil-Rundschau 4,* 385-96 (Nov. 1949); *in German.*

The representation of staple diagrams by summation or frequency curves is discussed. The operation of the "Uster" staple-diagram apparatus is described and illustrated; results obtained on rayon and cotton are presented and discussed. Advantages and disadvantages of the Uster procedure are noted.

Clothing and fabrics G 1

Abrasion resistance of 4 rayon fabrics used in women's slips. I-II. Hazel M. Fletcher & Jane Gilliam. *Rayon & Syn. Tex. 31,* 39-40 (July 1950); 54-6 (Aug. 1950).

Four materials used in women's slips—viscose, acetate, and acetate-viscose crepes, and viscose taffeta—were studied to determine whether the relative serviceability of the fabrics can be predicted from laboratory abrasion tests. The Taber Abraser and the Wyzenbeek Wear Test Meter were used. For the serviceability-in-use tests, a slip made from each of the 4 fabrics was worn for 1300 hrs. by each of 5 women engaged in similar activities. Both testers ranked the crepes in the same order as they were rated by the ap-

pearance of the worn slips and by the warpwise strength of the fabrics after use: 1) viscose crepe, 2) acetate crepe, 3) acetate-viscose crepe. Results indicate that the relative performance of garments made from rayon crepes similar in construction can be predicted from laboratory determinations of the abrasion resistance of the fabric from which they are made. The rayon crepes and taffeta, which differed in construction, were more difficult to compare.

Dimensional stability of woolen and worsted fabrics. Werner von Bergen & Claude S. Clutz. *ASTM Bull. No. 167,* 74-82 (July 1950).

Changes in moisture content in wool fabrics cause dimensional changes in those fabrics. Study of fabric structures and susceptibility of fabrics to R.H. motion gives indications of the changes in dimensions and the appearance change encountered at high humidity in tailored garments. Study of R.H. motion in conjunction with steam test shrinkage emphasizes the inaccuracy of shrinkage test procedures; steam test shrinkage of a fabric may give a false indication. It is essential that the fabric be reconditioned to its initial moisture content when making shrinkage tests in order not to include any R. H. motion in the test. The steam press may over-shrink a fabric, i. e. produce a shrinkage beyond the relaxation shrinkage which is not stable to R.H. cycling. Since steam tests do not give reproducible results, they cannot be used as a time measure of fabric shrinkage.

Gloss measurements on fabrics. Richard G. Quynn, Edw. J. Bernet & Earl K. Fischer. *Textile Research J. 20,* 492-509 (July 1950).

This article describes the experimental measurement of reflectance by means of a gonophotometer for a group of fabrics. The results are presented in the form of curves, computed "gloss indexes" or "gloss numbers," and visual ratings by different observers.

Study of shrinkage of men's rayon shirts. L. Corbeau, W. Werker & J. Bloem. *Mededeling van het Vezelinstituut T. N. O.,* No. 95; *in Dutch.* Part I, 40 p.; Part II, 20 p.

Describes performance tests conducted on several different kinds of men's rayon shirts to obtain data on shrinkage and performance during actual wear. Data are given for the tests, but due to difficulties arising from war conditions the number of observations made was limited. The tests, nevertheless, are considered an instructive step

towards the technique of carrying out such performance tests.

Instruments and instrumentation G 2

Control of mechanical properties of rayon yarns before weaving. Jean Henno and Robt. Jouhet. *Bull. de l' Institut Textile, No. 19,* 27-31 (June 1950); *in French.*

In this brief memorandum, the authors present a new apparatus for continuous determination of the mechanical characteristics of rayon yarn. The automatic Statotensiometer registers and records graphically the variations in elongation of yarn subjected to a constant load. It shows up weak points and enables accidental stretching to be detected (tight thread).

Determination of fiber bundle strength according to the Pressley tests. J. W. van Dalpen. (V. I. Pamphlet No. 20). Vezelinstuut T. N. O., Delft, Holland; *in Dutch.*

Contains a description of the Pressley test, statements as to its limitations, and data, the latter almost entirely as quoted from American sources. The author calls attention to the zero gage, as used in the Pressley, as affording limitations to the interpretation of the results, and especially as regards correlations with yarn strength.
HAM

Determination of the temperature at the surface of a fabric exposed in the Fadeometer. A. Cassal. *Bull. de l' Institut Textile, No. 19,* 51-56 (June 1950); *in French.*

The Fadeometer is a convenient instrument for determining fastness to light; in some cases it provides a more severe test than that of sunlight. One reason for this seems to be the very high temperature which prevails on the surface of the exposed fabric, which according to the authors' measurements is between 90 and 95°C. In the authors' opinion it is imperative to complete the apparatus by a voltage regulator, enabling it to be maintained at 210 volts. In addition, overheating of the fabric would be avoided if the air current produced by the cooling device were better directed towards the surface of the exposed fabric.

Electronic thread clearer. Thos. J. Price (to The Clark Thread Co.). USP 2 506 174, May 2, 1950.

An electronic thread testing device, comprising the combination of a pick-up having an electrically sensitive element associated therewith, a

thread guide adjustably mounted in spaced relation to the electrically sensitive element whereby the thread guide may be accurately positioned relative to the element to permit the passage of a thread of predetermined size between the guide and the electrically sensitive element, an amplifier connected to the element and a switching device connected to the output of the amplifier, the switching device being connected in a circuit controlling the operation of a thread winding device for drawing the thread between the guide and the electrically sensitive element whereby variations in an electrical impulse induced in the electrically sensitive element due to variations in the size of the thread passing between the thread guide and the element will cause the thread winding device to be stopped.

Ellis photometer. Anon. *Dyer 103,* 690 (June 2, 1950).

Describes briefly the Ellis Photometer for measurement of the reflectance of dyed textiles. The instrument, which is designed for dyehouse rather than laboratory use, utilizes a single photoelectric cell to measure the average reflectance of a rapidly rotating specimen with an area of about 80 sq. cms.

Instrumentation in textile testing and research II. Lee E. Cuckler. *Textile Age 14,* 52-5 (July 1950).

Industrial instruments aid in gaining and applying new standards and establish a real guarantee of accuracy in process measurement and control. The increasingly dominant role played by various instruments in testing and research at the Textile Research Institute, is described.

Instruments for the modern mill man. Anon. *Silk & Rayon 24,* 718 (June 1950).

Describes briefly a tensionmeter and stroboscopic tachometer. The tensionmeter weighs only 9½ oz., is 4½ in. long, 3¾ in. wide, and 1 in. deep. It permits rapid determination of tension applied to threads at any stage of processing. It is placed instantly in position without stopping and restarting the machine. The tension is read immediately on the dial. Graduation covers all normal requirements in grams: 0/10, 0/25, 0/50, 0/100, 0/250, 0/500, 0/1000. The stroboscopic tachometer requires no special lamp and is operated from electric outlets; it can be held in the hand without fatigue. Up to 1,000 spindles may be checked with the instrument in less than 15 minutes.

New automatic colorimetric color. Dorothy Nickerson, Richard S. Hunter & Marshall G. Powell. *J. Optical Soc. Am. 40,* 446-49 (July 1950).

Describes a new instrument for measuring the color of cotton which is based on an application of the Hunter Color and Color-Difference Meter to problems of raw cotton measurement. The instrument is designed to be fully automatic and self-standardizing; it shows graphically values for reflectance and yellowness on a 2-dimensional chart. The unit is self-contained in a movable cabinet. This particular model is limited to measurements in the range of cotton color, but the principles on which it is designed are adaptable to other limited ranges of color, in either 2 or 3 dimensions.

WJH

TEXTILE MILLS H

Air conditioning. E. W. Baldry. *J. Textile Inst. 41,* P288-98 (June 1950).

This is a survey of principles and methods of air-conditioning. Topics considered are: application to textiles, working conditions, physical considerations, function of the central plant, design of plant, and air cleaning.

Automatic overhead loom cleaning. Anon. *Textile Industries 114,* 79-80 (July 1950).

An overhead automatic loom cleaner equipped with a ceiling fan, installed over 54 Draper looms at a large South Carolina mill weaving cotton and spun rayon gabardine, is reported to not only clean the looms but also ceilings, lights, duct work, and floors. The cleaner uses high velocity from concentrated jets of air directed toward limited critical areas of the loom and which are automatically repositioned to completely cover the major portions of the loom over a period of time.

Better handling—a 2-billion dollar target. Kevin McLoughlin. *Factory Management and Maintenance 108,* 81-112 (June 1950).

Reduction in costs through improved materials handling is discussed, with programs for better handling, methods of presenting ideas to management (including the procedure used at Botany Mills), and description of new equipment and handling techniques.

Brampton's wool storage bins. Anon. *Textile Industries 114,* 91 (Aug. 1950).

Airy and commodious bins with smooth cement floors, glazed brick walls, and concrete blocks and with enough space to store wool for 24 hours

of card operations are being used at the Brampton Woolen Co. The bins have dormer screens near the ceiling to allow adequate lighting and dutch doors which facilitate access no matter what level the stock is inside.

Developments in Swiss textile machinery. Robert Honold & J. Meier. *Swiss Technics No. 3,* 19-40 (1949; *Indian Textile J. 60,* 536-48 (April 1950).

A complete and comprehensive survey of textile machinery developments including spinning, doubling, and preparatory equipment as well as weaving, knitting, finishing and testing equipment is described.

Effect of set-up time on unit costs—a study in doffing. Albert D. Alter. *Textile Age 14,* 60-2 (June 1950).

The effect of change in "down" or set-up time on unit costs is discussed, using data as to doffing time, doffing labor, and running time. The material is basel on the conditions in a spinning room where the frames must remain idle while full bobbins are replaced by empty ones.

Electrical equipment. Swaffield Cowan. *Am. Wool Cotton Reptr. 64,* 9-10, 35 (July 27, 1950).

In a discussion of the use and misuse of electrical equipment, it is reported that nearly 50% of fire claims filed in 1948 with one insurance company by cotton mills in only 3 southern states were the result of electrical equipment. Suggestions for cutting mounting fire losses are discussed.

Gantt charts. I. Laird. *Textile Mfr. 76,* 338-40 July 1950).

Discusses the Gantt charts, devised by H. L. Gantt, an American production engineer. These charts measure performance against the planned production, and point out divergences from the scheduled program, together with the reasons.

Gregg finishing plant. Anon. *Textile Age 14,* 18-21 (June 1950).

A description of the new Gregg dyeing and finishing plant is presented.

Half century of textile progress, 1900-1950. *Textile World 100* (July 1950).

The entire issue is a report on the American Textile Machinery Exhibition—1950, with excerpts from *Textile World* of 1900 included to emphasize the progress made in the textile industry during the last 50 years. Many pictures of the equipment exhibited are included and brief descriptive notes are given.

How spooler conveyor cuts costs. W. S. Whiting, Jr., *Am. Wool Coton Reptr. 64,* DC-D (July 27, 1950).

A discussion of the development and operating and cost-saving features of a new spooler conveyor for distributing yarn from one point around a Barber-Colman spooler is given.

How Textile Mills are Modernizing; a report to the textile industry on general trends and specific new electrical methods and equipment. Prepared by the General Electric Company. (1947).

This is a survey of the latest trends and developments in the use of electrical equipment in the textile industry. New applications are presented in simplified diagrammatical form. Areas of mill operation covered include yarn manufacturing, preparatory processes, fabric manufacturing, finishing and inspecting and mill-wide topics.

Industrial instrumentation for textile manufacturing. Lee E. Cuckler. *Textile Age 14,* 14-17 (June 1950).

A brief history of industrial instrumentation is given.

Maintenance survey. Anon. *Textile Industries 114,* 101-3 (July 1950).

A condensed version of an actual survey made by the plant engineer of a southern cotton mill is given. The survey deals with power, lights, steam, air, humidification, and the buildings.

Materials handling at Borden Mills. Anon. *Textile Industries 114,* 92-6 (Aug. 1950).

Mechanical materials handling facilities recently installed at Borden Mills, including an extensive filling bobbin conveyor, an overhead monorail lap conveyor, an inclined roller chute cloth conveyor, and a waste bale ramp, are described and illustrated.

Mill air conditioning justifies expense. H. S. Colbath. *Am. Wool Cotton Reptr. 64,* 15-16 (July 6, 1950).

Points to be considered in the selection of an air conditioning system are discussed, and the system used Bibb Manufacturing Company is described.

Mill men from far and near visited the American Textile Machinery Exhibition. Anon. *Textile Industries 114,* 110-111, 113, 115, 117, 119, 121, 123, 125-6, 129, 13-3. (July 1950).

A report to the textile industry is presented describing briefly that equipment which was exhib-

ited for the first time at Atlantic City.

Mill realizes low operating costs by use of storage battery trucks. Ira S. French. *Textile Age 14*, 28-9 (July 1950).

Installation of 2 storage battery-powered fork trucks at Cross Cotton Mills Co. has resulted in a decrease in man-power and man-hours with greater utilization of storage space. The use of the trucks for handling incoming supplies and outgoing shipments is described.

Method and apparatus for labeling fabrics. Theodore F. Schlicksupp. USP 2 516 487, July 25, 1950.

Apparatus for applying labels to fabric from a backing strip to which a number of thermoplastic labels are attached in spaced relation, comprising a support for the fabric, means for advancing the backing strip relative to the support past a label-applying station and arresting its movement when one of the labels reaches such station. presser members operable to press such label and the fabric together, one of the members being adapted to engage the fabric and the other being adapted to engage the portion of the backing strip to which such label is attached, means for heating the presser member that engages the backing strip to cause the label that is pressed against the fabric to fuse to the fabric and means acting during movement of the backing strip to separate the label that has been affixed to the fabric from the backing strip.

New England Industrial Wastes Conference. Anon. *Am. Dyestuff Reptr. 39*, 519 (Aug. 7. 1950).

On June 26, 27 and 28 the New England Industrial Waste Conference was held at M. I. T. In addition to general discussions on pollution abatement from the viewpoints of industry, control agencies and municipalities, there were symposia on the water and waste problems of specific New England industries. Abstracts are given of 3 papers presented in the symposium on textiles on June 27. The papers abstracted are as follows: "Treatment of wool dyeing and finishing wastes." by M. G. Burford and J. W. Masselli: "Waste treatment in cotton finishing plants." by G. C. Bogren; "Recovery of grease from wool scouring wastes," by A. A. Cameron.

New types of textile machinery previewed at Atlantic City. Anon. *Textile Age 14*, 44-50 (June 1950).

A review of features of the 1950 American Tex-

tile Machinery Exhibit not previously reviewed in this journal is presented.

Novel method of speed variation. Anon. *Textile Recorder 68*, 77 (July 1950).

Operating on a simple but efficient mechanical principle, the "Kopp" Variator gives complete range of output speeds from one third to 3 times input speed and is capable of application to a variety of textile processes.

Operations recorders. Anon. *Textile Industries 114*. 131, 133, 135 (Aug. 1950).

The use of Esterline-Angus operations recorders at Laurens Hosiery Mills, Inc. for analyzing production operations and knitter efficiency on full-fashioned machines is discussed.

Paton Manufacturing Co. Anon. *Textile Age 14*, 16-19 (July 1950).

The history of Paton Manufacturing Co. in Canada and a description of its modernization program are discussed.

Quill conveyor. Anon. *Textile Industries 114*, 90-2 (July 1950).

A conveyor system for transporting filling bobbins from the bobbin stripper to various supply stations in a mill is described. Handling bobbins with the conveyor is reported to be much less costly, more efficient, and faster than the manual method.

Some applications of rheology in the textile and other industries. R. S. Higginbotham. *Chemistry & Industry, No. 22*, 424-25 (June 3, 1950).

(Abstract of a talk). Many technically important materials are non-Newtonian fluids, having viscosities which vary with shearing stress, and specification of the consistency of such materials calls for more than one viscosity measurement. Starch pastes used in sizing cotton and rayon are similar enough to be characterized by viscosities at one properly-chosen rate of shear; but other sizing materials, calico-printing pastes, etc., require viscosity measurements at several widely separated shear rates. Pastes of plastics such as are coated on textiles for artificial leather manufacture offer unusual complexities in their rheology, though the pendulum viscometer, originally designed for greases, may be usable with these substances.

Stretch oil and grease dollars. Wm. Law. *Textile Industries 114*, 119, 123 (Aug. 1950).

Suggestions for making lubrication more econom-

ical and short cuts to keep down costs in lubricating are presented.

THE TEXTILE RECORDER BOOK OF THE YEAR, 1950. Manchester and London, Harlequin Press Ltd., 1950. 228 p. Price: 21s.

In addition to survey articles on economic aspects of the British textile industry, brief summaries of textile research are given as follows: Cotton Research Covers a Wide Field; Developments in Woolen and Worsted Yarn Production; Developments in the Dyeing of Wool; Progress in Rayon Technology and Research; Developments in Jute Research; Flax and Linen Research; Textile Research and the Hosiery Industry; The Textile Technologist in the Mill; and Design and the Textile Industry. Other articles are devoted to: Textile Machinery Development, Progress in Textile Education, and Textile Statistics.

V-belt drives in the textile industry. Oswald von Förster. *Melliend Textilber. 30,* 574-76 (Dec. 1949); *in German.*

The excellent technical properties of the V-belt drive have secured its introduction into the textile industry also, where it is used to drive the most diverse types of textile machinery. Following a brief historical sketch and a basic description of the V-belt drive, the author discusses its elements in detail and refers to the standardization of these parts. The advantages and drawbacks of the various types are pointed out and attention is drawn to the "clarified manufacturing program," as it is called, when dealing with the endless V-belt, whereby the number of German DIN standards was reduced by about 50%. A table shows the sizes now being manufactured. Another section of the article deals with special types of V-belt. Examples are given showing the possibilities of application of V-belt drives in the textile industry.

Whitin at the Textile Exposition. Anon. *Whitin Rev. 17,* 1-21 (Mar.-Apr. 1950).

Brief descriptive notes are given on the principal Whitin machines exhibited at the American Textile Machinery Exposition. The machines noted are: the Model J comber, roving frames, Model P2E drawing frame, Whitin-Schweiter automatic filling winder, "C6" ring twister, Model R ring twister for worsted, Model P ring twister for cotton, Model F-2 spinning frame, Model E wool spinning frame.

Wool felt gains ground in anti-vibration field. I. Niran Pope. *Textile Age 14,* 44-5 (July 1950).

In this first of 2 articles dealing with various aspects of vibration in the textile mill, the use of wool felt as an anti-vibration mounting for production equipment is discussed.

CHEMISTRY AND PHYSICS OF TEXTILE MATERIALS I

Action of light on textiles. R. Dicker. *Rayonne 6,* 50-2 (1950); *in French.*

The mechanism of photochemical degradation of rayon is discussed. There are 2 types of such degradation (1) photolysis wherein the light absorbed is of a short wave length and which results in a cleavage of a chemical linkage; (2) photosensitiveness wherein the reagent is incapable of absorbing a considerable proportion of the incident light making it necessary to introduce a material capable of absorbing the light and directing the absorbed energy toward the reacting molecules.

Analysis of ash content of flax. Franz von Walczyk. *Melliand Textilber. 31,* 307-09 (May 1950); *in German.*

The variations found in the analysis of the ash content of hackled flax made by G. H. Veltman were statistically evaluated and it was found that the ash content both of the accompanying substances as well as of the embryo fibers varies to such an extent that it can only be used to a very limited degree as a measure of the percentage content of the accompanying substances. Calculation of the correlation coefficients between ash content and the degree to which the fiber can be spun shows a plain connection between the 2 values only when differences in the water supply are the sole cause of the altered fiber structure. The differences in the capacity of spinning due to the peculiarities of the sort seem to have a correlation to the ash content which is contrary to the differences that are the result of climatic influences. The connections found with the correlation calculation are amplified and confirmed by analysis of the variants.

Electrokinetic properties of cellulose fibers. I.—Stream potential and electro-osmosis. D. A. I. Goring & S. G. Mason. *Can. J. Research 28,* 307-22 (June 1950).

Stream potential, electro-osmotic, and permeability measurements were made on cotton pads in the presence of distilled water. Several sources of irreproducibility have been eliminated from the usual experimental methods of measuring the

zeta-potential. Uniform packing of the pad has been shown to be important. The Briggs method of evaluating the "pore factor" by electrical conductivity measurements was found to be invalid. An alternative method of determining the factor is proposed, based on an assumed value for the pore orientation factor and an indirectly measured value of the swollen specific volume of the fibers. The ratio of the zeta-potential calculated from electro-osmosis to that from the stream potential was greater than unity and increased with increase in pad concentration.

Electrokinetic properties of cellulose fibers. II.—Zeta-potential measurements by the stream-compression method. D. A. I. Goring & S. G. Mason. *Can. J. Research 28*, 323-38 (June 1950).

A new technique of measuring the zeta-potential of cellulose fibers, in which stream current potential measurements are carried out over a range of solid concentrations on a single pad, is described. In employing the stream potential method it is necessary to measure the d-c. resistance of the pad, since a pronounced dispersion effect yields a-c. resistance values which are in considerable error. Degrees of swelling calculated from the stream data are consistently higher than those calculated from permeability measurements. A model of the fiber-liquid interface, consisting of partially dissolved electrically charged cellulose chains accounting for the observed discrepancy is discussed. If this model is applicable, the physical significance of the zeta-potential becomes extremely complex.

Electrokinetic properties of cellulose fibers. III.—Note on the low frequency dispersion of electrical resistance. D. A. I. Goring, G. J. Biefer & S. G. Mason. *Can. J. Research 28*, 339-44 (June 1950).

Sulfite cellulose, rayon cellulose, and silk fibers in the presence of 10^{-4}N potassium chloride show a 20 to 25% decrease in electrical resistance between 0 and 100 cps. An additional but smaller decrease occurs between 100 and 15,000 cps. The systems also show a marked capacitive reactance. Reversal of the sign of the zeta-potential in sulfite fibers destroys the effect. Non-swelling fibers such as asbestos, glass, and acetate rayon, slightly swelling nylon, and moderately swelling wool show no comparable behavior. It is evident that the phenomenon is related to the swelling properties of the systems, but it cannot be concluded whether it is associated with the surfaces of the

interior of the swollen fibers.

Exchange of radioactive zinc between cellulose and sodium hydroxide-sodium zincate solutions. Karl Borgin & Alfred J. Stamm. *J. Phys. & Colloid Chemistry 54*, 772-77 (June 1950).

It is known that the addition of relatively small amounts of zinc oxide to concentrated solutions of sodium hydroxide, forming a sodium zincate solution, greatly increases the swelling and solvent power of the alkali for cellulose. In order to answer the question as to whether the zinc complex is physically adsorbed or whether it reacts chemically with cellulose experiments were conducted on the exchange of radioactive Zn^{65}. It was found that radioactive Zn^{65} in the form of sodium zincate dissolved in concentrated sodium hydroxide can be rapidly removed from cotton by exchange into an active solution of identical concentration and by exchange into a more concentrated solution counter to the inward diffusion under a concentration gradient. In the latter case, inward diffusion hinders exchange for the first minute, while equalization of concentrations is occurring. Exchange during the next 4 min. into the second solution is relatively faster, as more radioactive zinc remains in the cotton for exchange. Exchange into the 3rd and 4th solutions is about the same. Diffusion into water is more rapid at first than the exchange into the same concentration of inactive solution because of the diffusion potential. Diffusion slows down, however, as both sodimum hydroxide and sodium zincate are removed from the cotton as a result of the shrinkage of the cotton and a reduction in the cross section effective for diffusion.

Fungi growing on jute. S. N. Basu & S. N. Ghose. *J. Sci. Ind. Res.* (India) *9*, 151 and 155 (June 1950).

The present work was undertaken to isolate and identify the fungal species that grow—or are found—on jute and jute manufactures. 27 species of fungi, mostly *Aspergilli* and *Penicillia*, were found on raw jute, yarn and hessian samples incubated in shade at humidities ranging from 100 to 80 per cent R.H. *P. citrinum* is most conspicuous. Only 22 of these species appear to be actually growing on the samples. The number of species growing at 100 per cent R.H. is the largest. Between 100 to 95 per cent R.H. there was a fall in the number of species growing, and between 95 to 90 per cent R.H. total growth was reduced. At 85 and 80 per cent R.H. only a few species were able to grow very slowly. The pre-

vious observation that the dark-coloured fungi of the *Dematiaceae* family are inhibited by other species when growth takes place in shade is supported by these results. Competition seems to play a significant part in some instances. Thus *Aspergillus glaucus* and *Chaetomium indicum* occur much more frequently at lower humidities when dominant species like *Penicillium citrinum* are suppressed.

Graphical determination of the pH value. Walter Wittenberger. *Melliand Textilberichte, 31,* 359-60 (May 1950); *in German.*

The following article presents a report on the graphical determination of the pH value. The author deals with the principles upon which the definition of acids and bases given by Bronsted is based and the structure of the logarithmic graphs for the pre-calculation of the pH value of a solution of known concentration and the dissociation constants of the solute. Examples are given explaining the method.

Heat retention of fabrics. M. le Chanoine Pinte. *Bull. de l' Institut Textile, No. 19,* 21-26 (June 1950); *in French.*

This memorandum gives a brief description of the experimental process which was applied to the study of heat retention. This study permitted establishing a relation—which can be shown graphically—between the thermic insulation capacity of a fabric and its elemental characteristics. Such relations are extremely general and their application permits of determining the heat-retaining capacity of a fabric without making any calorimetric measurement.

Kinetics of wool dyeing. Part I: Simple acid dyes. P. Alexander & R. F. Hudson. *Textile Research J. 20,* 481-91 (July 1950).

The rate controlling mechanism of dyeing wool with the simple acid dye Acid Orange II can be diffusion through an unstirred film of liquid or diffusion through the fiber. At low dye concentrations, the diffusion of dye through an unstirred film of liquid is the slower of the 2 processes. At higher dye concentrations, the rate controlling step changes from diffusion through liquid film to diffusion through solid under certain conditions. At high dye concentrations the diffusion of dye through the fiber proceeds from a saturated concentration on the fiber surface and can be readily treated quantitatively. At low dye concentrations the diffusion through the unstirred liquid film can also be treated by the simple diffusion law. In the intermediate ranges, however, diffusion into the fiber proceeds from a varying concentration on the fiber surface and is treated on the basis of a semi-empirical relationship. It is concluded, from consideration of the diffusion coefficient and the apparent energy of activation, that dye is not transported through pores, but that the swollen fiber behaves like a gel and diffusion occurs by displacement of peptide molecules.

Measurement of friction between single fibers. V—Frictional properties of viscose rayon staple fibers. Bertil Olofsson & Nils Gralen. *Textile Research J. 20,* 467-76 (July 1950.

A stick-slip arrangement was used to make measurements on viscose rayon fibers which had been treated with different finishing agents, spinning oils, etc. The agents were of 3 groups: 1) low static, low kinetic friction; 2) high static, low kinetic friction; 3) high static, high kinetic friction. The influence of humidity on friction is small if air humidity does not exceed 85-90%. Dependence of friction upon load differs with the treatment. A theoretical study of the influence of frictional properties on sliver movements in drawing frames was made.

Measurement of friction between single fibers. VI A theoretical study of fiber friction. Bertil Olofsson. *Textile Research J. 20,* 476-80 (July 1950).

The dependence of friction on load is mathematically treated and the nature of fiber friction considered. The difference between static and kinetic friction is assumed due to the closer surface sticking in the static case. The possibility of viscous sliding of fibers is discussed.

Molecular structure of wool keratin. A. C. Goodings. *Textile Research J. 20,* 454-66 (July 1950).

Properties of the wool fiber are discussed. The structural pattern in keratin is deduced from information provided by density and x-ray diffraction measurements. Implications of this structure are pointed out; other folded molecular configurations which are extensions of the proposed keratin structure are advanced and discussed in connection with experimentally observed facts.

Objective measurement of color and color changes. Buchmann-Olsen. *Tids. Textilteknik 8,* 94-98 (June 1950); *in Danish.*

The article reviews a doctoral thesis on the objective measurement of color. The problem of de-

termining light fastness is discussed and a review of methods for color measurement is given. Based on simple filtering an objective tricolorimeter equipped with selenium barrier layer photo-cells is constructed allowing for speedy and accurate determination of C. I. E. tristimulus values. Mention is given to the application of color measurements to some textile industry problems.

Penetration of cellulose fibers. Alfred J. Stamm & Harold Tarkow. *J. Phys. & Colloid Chemistry 54,* 745-53 (June 1950).

Fibers of pure cellulose and lignocellulosic materials such as wood can be directly penetrated only by polar liquids. The extent to which a liquid will penetrate fibers and swell them appears to be dependent upon the ability of the liquid to form hydrogen bonds with the hydroxyl groups of cellulose and the lignin, and also upon the size of the liquid molecules. Nonpolar liquids, which do not by themselves penetrate fibers, can replace polar liquids already in the fibers except for the monomolecularly held portion of the polar liquid.

Pore space: distribution in textile materials. Anon. *Fibers, 11,* 18 Jan. 1950).

Discusses briefly fabric porosity on the basis of studies recently reported in the literature by various workers.

Quantitative study of resilence. L. F. Beste & R. M. Hoffman. *Textile Research J. 20,* 441-453 July 1950).

Fiber and yarn samples for resiliency studies should be boiled-off before testing in order to bring the fiber properties more nearly to what they would have been after weaving and finishing. Two factors, 1) stiffness (measured by Young's modulus) and 2) diminishing modulus are used in defining the type of resiliency. The "compliance ratio" is proposed as a practical measure of diminishing modulus on the stress-strain curve. Results are given of stiffness and compliance-ratio measurements for a number of fibers. Type of resiliency of a synthetic fiber can be varied by its method of preparation. Ability to recover from deformation characterizes extent of resiliency. The 15-sec. crease recovery of fabrics correlates much better with fiber covery tests at 3-5% elongation than with those at 1% elongation. Results of recovery measurements made at 60% and at 90% R.H. are given.

Relation between fiber and yarn flexural rigidity in continuous filament viscose yarns. P. W. Carlene. *J. Textile Inst. 41,* T159-70 (May 1950).

Researches have been in progress on the stiffness of fibers with the object of determining to what degree the intrinsic stiffness contributes to the draping properties of fabrics and to what extent this is governed by structural factors. This paper records the first stage of the work, which is concerned with establishing the relationship between fiber and yarn flexural rigidity for the simplest yarn structure, i. e. a singles, low twist continuous filament yarn.

Some effects of the vaporization of water from cotton cellulose. W. A. Bone & H. A. Turner. *J. Soc. Dyers Colorists 66,* 315-27 (June 1950).

Experiments with purified cellulose, air and water indicate that an increased activity of the system is shown at the narrow boundary region between wet and dry cloth which is formed when the lower end of a strip of cotton is dipped in water. Evidence is brought forward to show that the cellulose is modified to give 2 distinct types of products—a) one, soluble in water, brown in color, fluorescing under ultra-violet, and having enhanded reducing properties; b) the other is solid, non-transportable in water, restricted to the boundary region, and with higher cuprammonium fluidity and Methylene Blue absorption than the original cellulose. Light energy plays little or no role in this phenomenon.

Studies of thermophilic cellulose decomposing bacteria. Richard H. McBee. (Doctoral dissertation, 1948, Washington State.)

Synchronization time and its effect on machine efficiency. H. P. Stout. *J. Textile Inst. 41,* T225-35 (June 1950).

A mathematical treatment.

Thermal behavior of fabrics at flaming temperatures. Sydney Coppick, Jas. M. Church & Robt. W. Little. *Ind. Eng. Chemistry 42,* 415-18 (Mar. 1950).

The protective quality of a fabric exposed to flame depends on the quantity and intensity of heat supplied and generated, the area over which it is effective, and the coefficient of heat transfer. In addition to the heat impinging on the fabric, cellulosic materials generate heat by oxidation of volatile decomposition products and glowing (oxidation) of solid residues. Damage or injury to personnel results from heat transfer through and propagation along the fabric, and tests show that because of their low thermal conductivity even

after charring, cellulose fabrics which are adequately flameproofed and glow-retarded provide thermal protection equal to that of fabrics made from glass or asbestos fibers.

TEXTILE EDUCATION AND RESEARCH J

AATCC research and the life of Mr. Jay Box. J. Robert Bonnar. *Am. Dyestuff Reptr. 39,* P458-60 (July 10, 1950).

Describes the operations of the AATCC research groups, how new problems come to the Association, and how the wheels are set in motion to solve those problems. Also mentioned is the AATCC plan to publish textbooks especially written from a sound theoretical background and practical point of view to help the young textile chemist or colorist to improve himself with ultimate benefit to the industry.

Courtaulds' new development mill. Anon. *Textile Mfr. 76,* 169-71 (Apr. 1950). **Recent developments in rayon staple wool blends.** Anon. *Textile Recorder 67,* 76-7 (Apr. 1950); **Bull Royd—a manager's dream come true.** Anon. *Silk & Rayon 4,* 438, 441-42 (Apr. 1950).

This is a description of the facilities and equipment of Courtauld's new demonstration factory at Bull Royd Mill.

Does management appreciate research? Elliot Broadbent. *Am. Dyestuff Reptr. 39,* P461-62 (July 10, 1950).

Three kinds of research, with reference to textile manufacturing, are defined: 1) pure research, usually left to advanced institutions and research foundations; 2) fundamental research, conducted mainly by suppliers and dyestuff manufacturers and by a few vertical textile organizations; and 3) applied research, which must be carried out by every textile plant if textile manufacturing is to utilize fully the results made available by pure and fundamental research. The value of the fundamental research of the AATCC is noted.

Old Danish textiles. Margethe Hald. *Tids. Textilteknik 8,* 99-109 (June 1950); *in Dutch.*

The author who is an inspector of the Danish National Museum gives a summary of her doctoral thesis which is a comparative historical study of textiles and costumes on the basis of finds in bogs and graves from the Iron Age. The comparison has not been confined to material from this period; material from older periods, especially the Bronze Age has occasionally been included together with ethnological and ethnographical material from more recent times. The methods of workmanship preserved here and there in remote parts of the civilized countries or among primitive people frequently throw light on the methods which the peoples of ancient times used.

Place of research in the textile industry. Jas. L. Taylor. *Research Engr.* 3-4, 15-19 (Nov. 1949).

In a lecture, research in the textile industry is discussed under the following headings: textile history, research beginnings, research groups, Georgia Tech research, flax research, ramie research, and future textile research.

PUBLICATIONS AND PATENTS, July-December 1949, Southern Regional Research Laboratory. AIC-188 (Supplement 4) February 15, 1950, 14 p.

This is a listing of publications and patents emanating from the Southern Regional Research Laboratory during the last half of 1949. Among the items listed are a number of textile interest.

Report on the Japanese cotton industry. W. T. Kroese. PB 100 359, Dec. 1949. 36 p. tables. *Bibl. of Technical Reports 13,* 255 (May 12, 1950). (Available from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C.)

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Scientific research—its influence on the textile industry. W. J. Hamburger. *Can. Textile J. 67,* 58, 60, 77 (July 21, 1950).

Stresses the importance of fundamental knowledge of the natural textile fibers as means for creating new products, improving existing products, and developing more efficient production methods.

Textile industry changes pace. Robt. E. Wright & Milton Harris. *Chem. Eng. News 28,* 39-9 (Jan. 2, 1950).

Trends in textile research and development are reviewed under the headings: cellulosic fibers, wool, new fibers, dyeing, and blending for comfort. Changes are occurring in the textile industry at an ever increasing rate due to the backlog of new products and processes developed in the past few years, and the economic pressure of declining markets which stimulates the search for novelty, improved quality, and reduction in costs.

Textile research achievements in 1949. Julius B.

Goldberg. *Can. Textile J. 67*, 60-1, 64 (Mar. 31, 1950); 58 ,60, 62 (June 9, 1950).

See TTD: *7*, 342.

Wool research institutions throughout the world. 4. Textilforsknings-institutet, Gothenburg, Sweden. *Wool Science Rev.*, No. 4, 16-24 (Nov. 1949).

The development, organization, and program of the Swedish Institute for Textile Research is discussed briefly.

Wool textile research. Anon. *Textile Mercury & Argus* 80-2 (Suppl. Mar. 1950).

The research program of the Wool Industries Research Association, Torridon has been considerably expanded. With the completion of new facilities for technical research it is planned to put a greater emphasis on technical than on fundamental work. A staff of liaison officers is used to carry the work of the W.I.R.A. to the industry by individual contacts. The work of W.I.R.A. in the fields of motion study, quality tests, short-cut processing, woolen carding, weaving research, chemistry of textiles, radio-chemistry, and publications is noted briefly.

Work of the Danish Textile Research Institute. R. W. Asmussen. *Tids. Textilteknik* 8, 89-93 (June 1950); *in Danish.*

This is a report on the work performed by the Danish Textile Research Institute in 1949. In Section 2, Basic Research, reference is made to: Experiments on elasticity, Dielectrical examinations, Whiteness measurements, X-ray tubes with rotating anode. In Section 3: Applied Research and Consultation Activity, reference is made to: Starch and sizing experiments, The importance of the drying method to the degradation of textiles during use, Interaction of wetting agents, Consultative activity. In conclusion a list is given of 50 publications issued by the Institute (1944-1950).

CHANGE OF TITLE

The name of *Silk and Rayon* was changed to *Skinner's Silk & Rayon Record* with the July issue (Vol. 24, No. 7. In the future the name of this journal will be abbreviated in the TEXTILE TECHNOLOGY DIGEST as *Skinner's Silk & Rayon Rec.*

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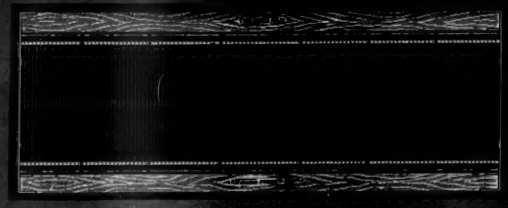

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